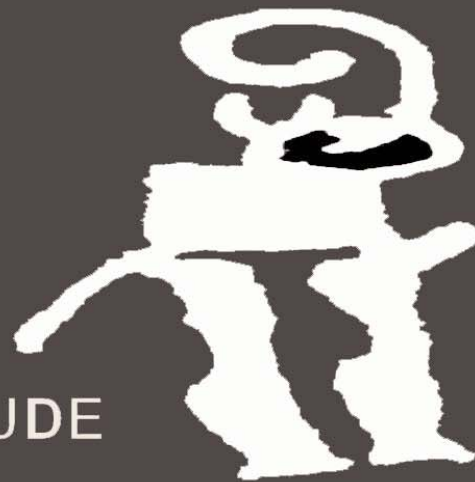


LA  
GROTTE  
DU

CLAUDE



PRIMITIF  
QUANTIQUE

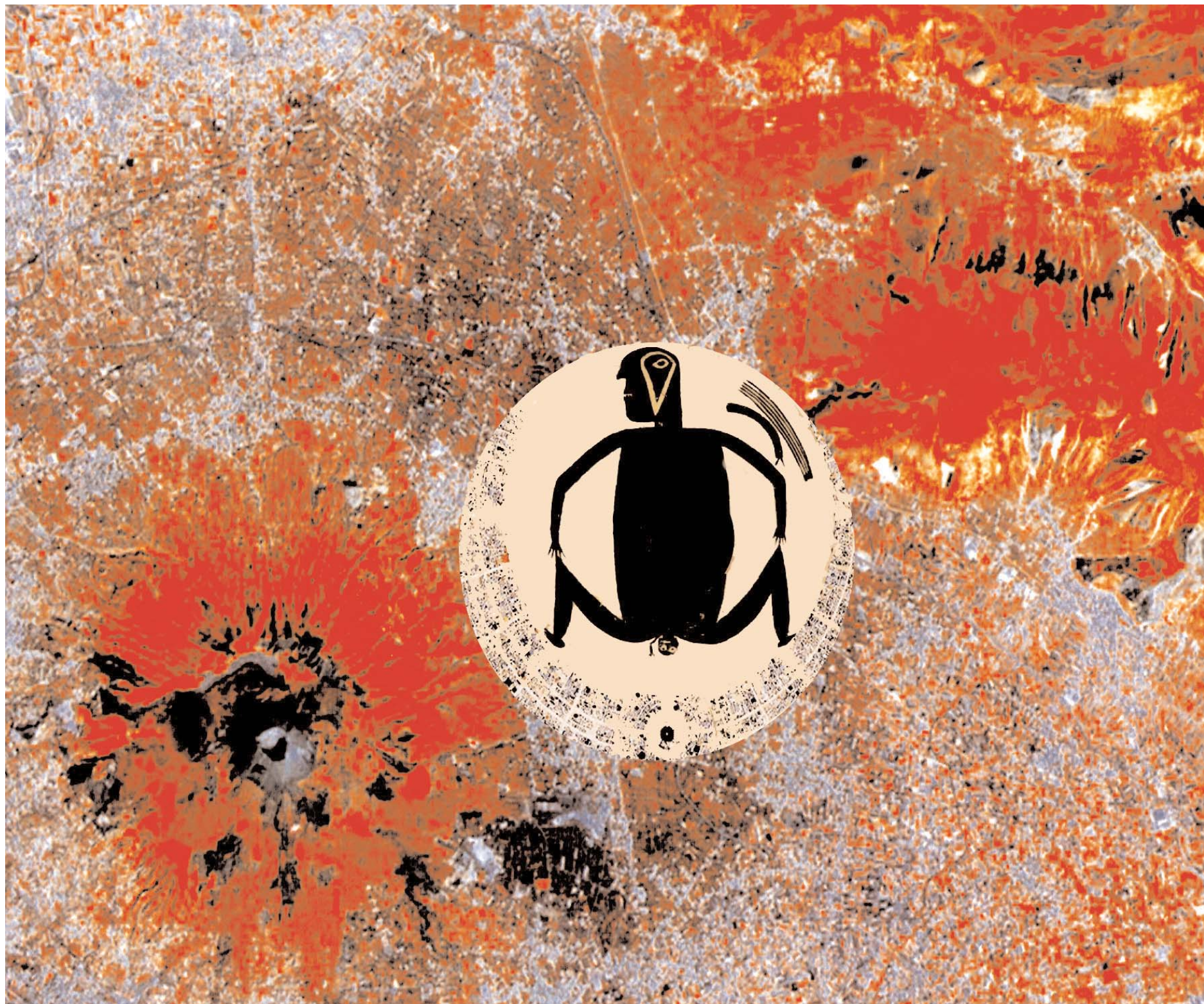
PAQUET



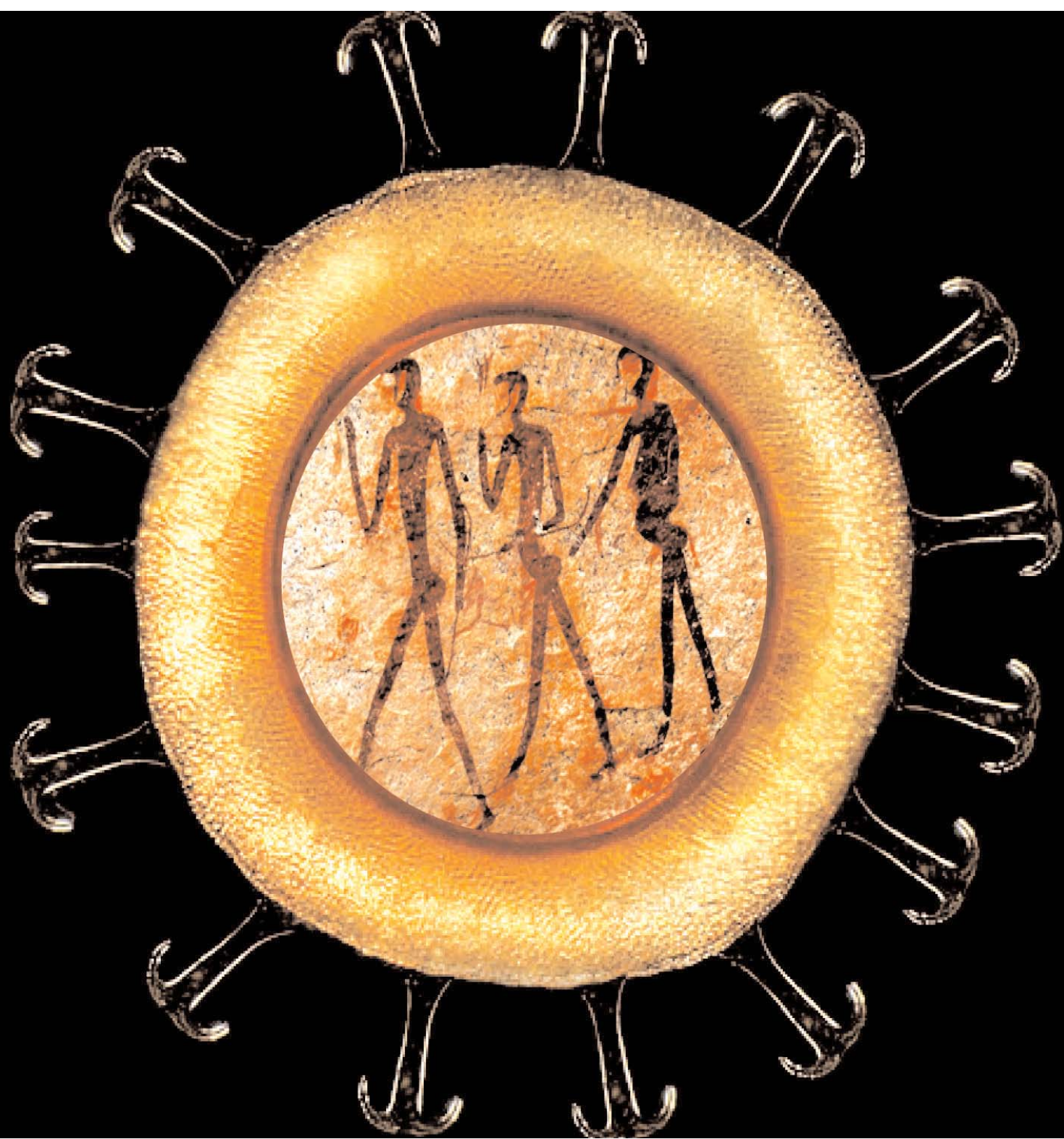














Bar... SW 87

(2)  $C(x, Q^2) = 95$

$125 < 127$

$m = 125 \text{ GeV}$



$2 = 95 \left[ -9 + \frac{4}{9} \times C(x, Q^2) \right]$

NLO + NNLL

$C(x, Q^2) + \alpha_s$

LO + NNLL

$C(x, Q^2) = C^{\text{int}}(x, Q^2)$

$+ 95 \left[ -9 + \frac{4}{9} \times C(x, Q^2) \right]$

$125 < \dots < 127.5$

$125 \pm 2 \text{ GeV}$



$\frac{d^2}{d^2} (m S^2)$

$\frac{m^2}{h} \cdot \text{new}$

$SH$

$125$

$A(h)$

$B_0$

$\Delta$



Bar...

SW 87<sup>4</sup>

(12)

$$C(x, Q^2) = g_s$$

$$\left( \frac{1}{2} \right)$$



(12)

$$= g_s \left[ \frac{1}{2} + \frac{1}{4} \times \dots \right]$$

1250 C122

DYNINLO

EOJ

NLO + NNLO



INLO

NNLO

191



1252... 5127.5

1252 GeV

$\lambda = 9.19$

$\lambda \uparrow$

10000

10000

10000

10000

10000

10000





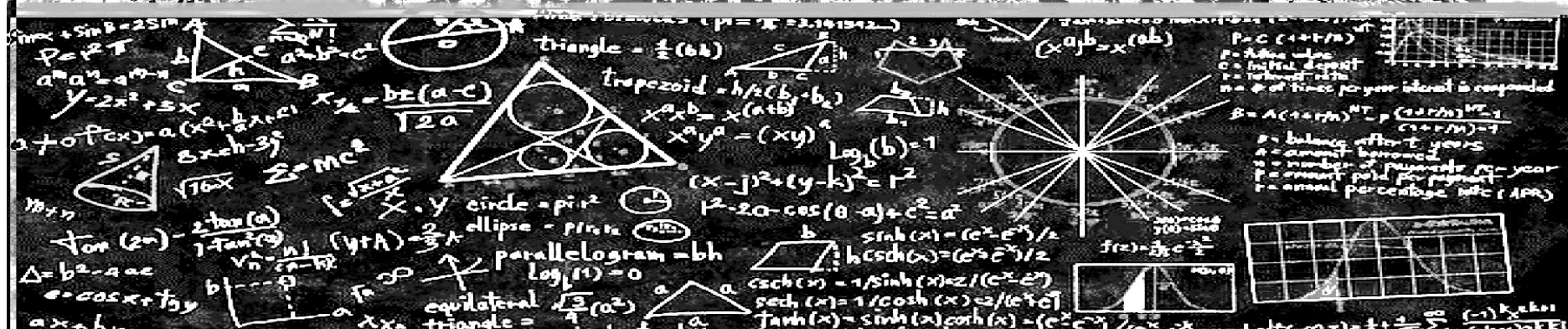
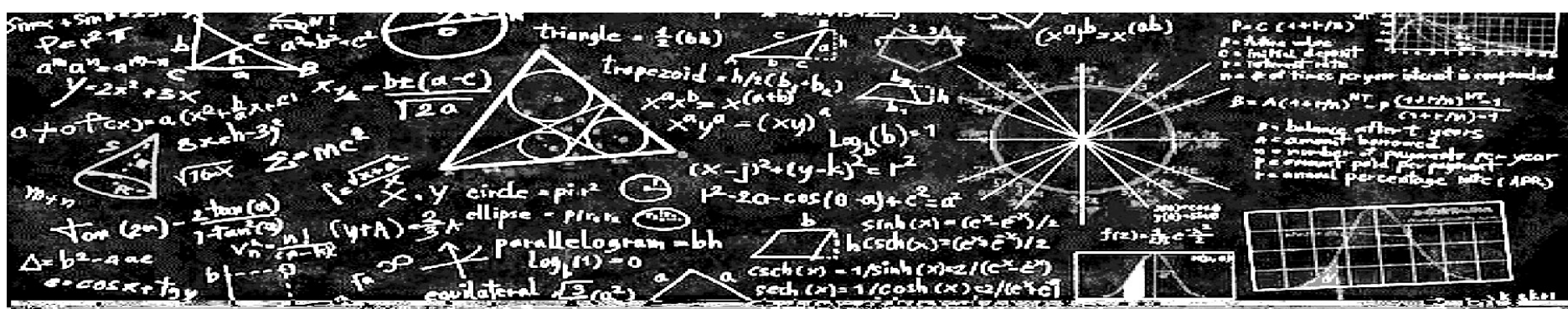












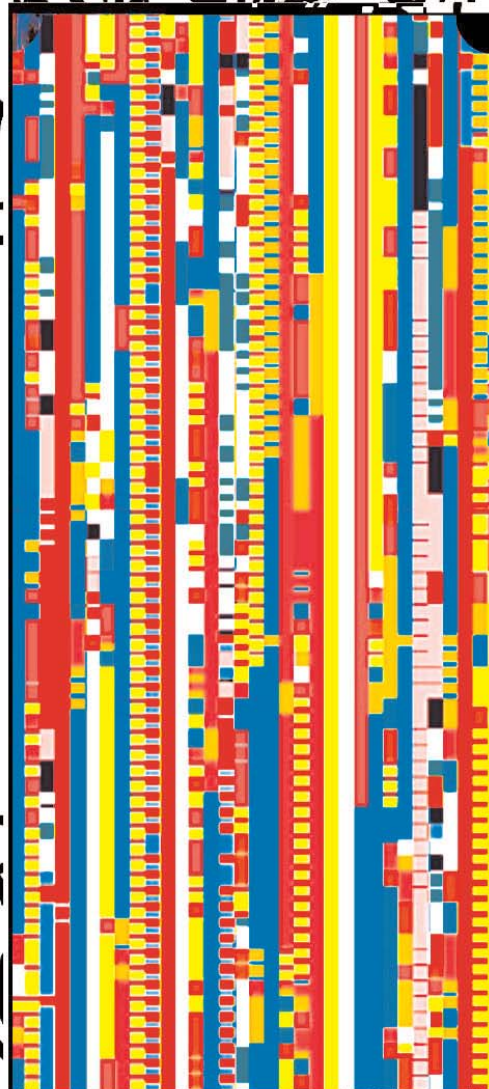
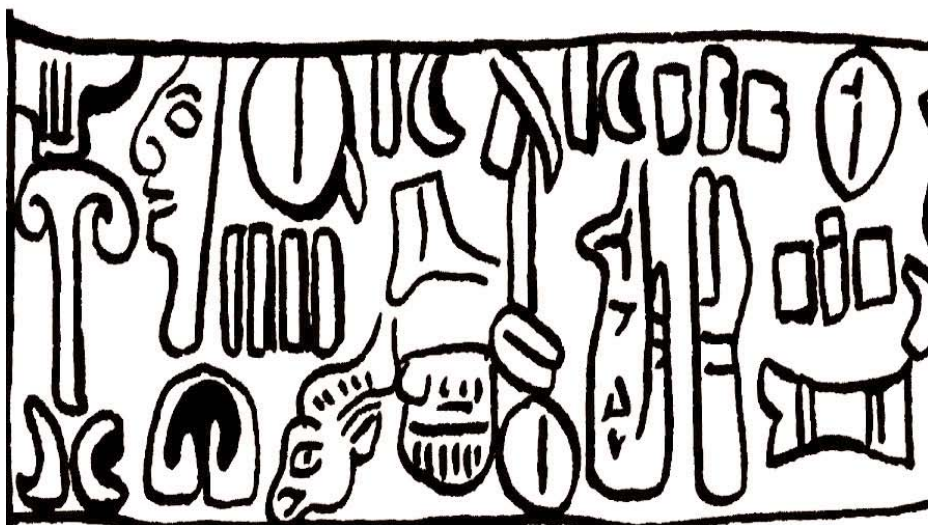
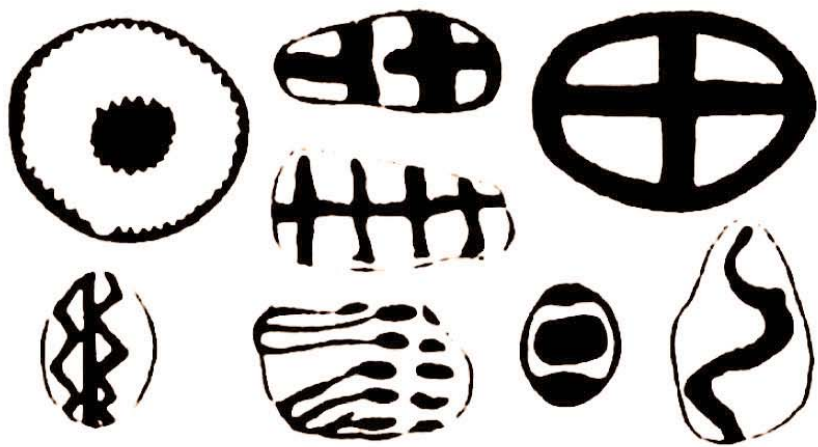
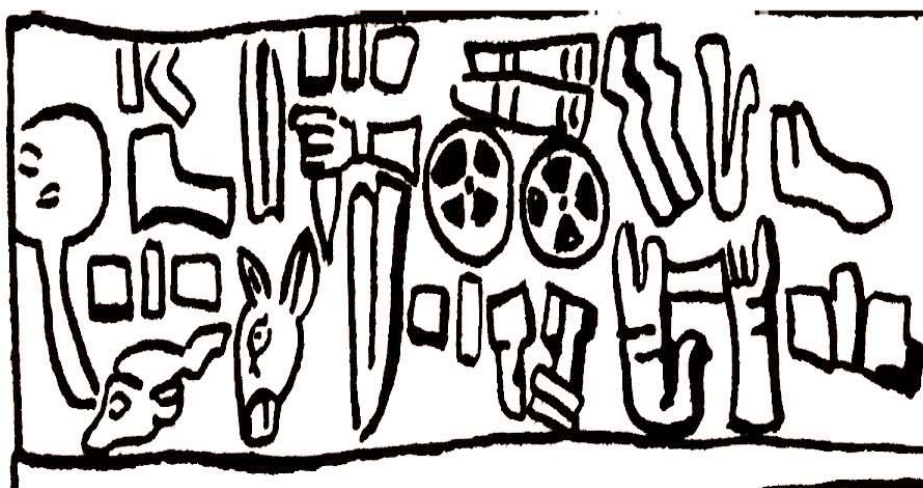




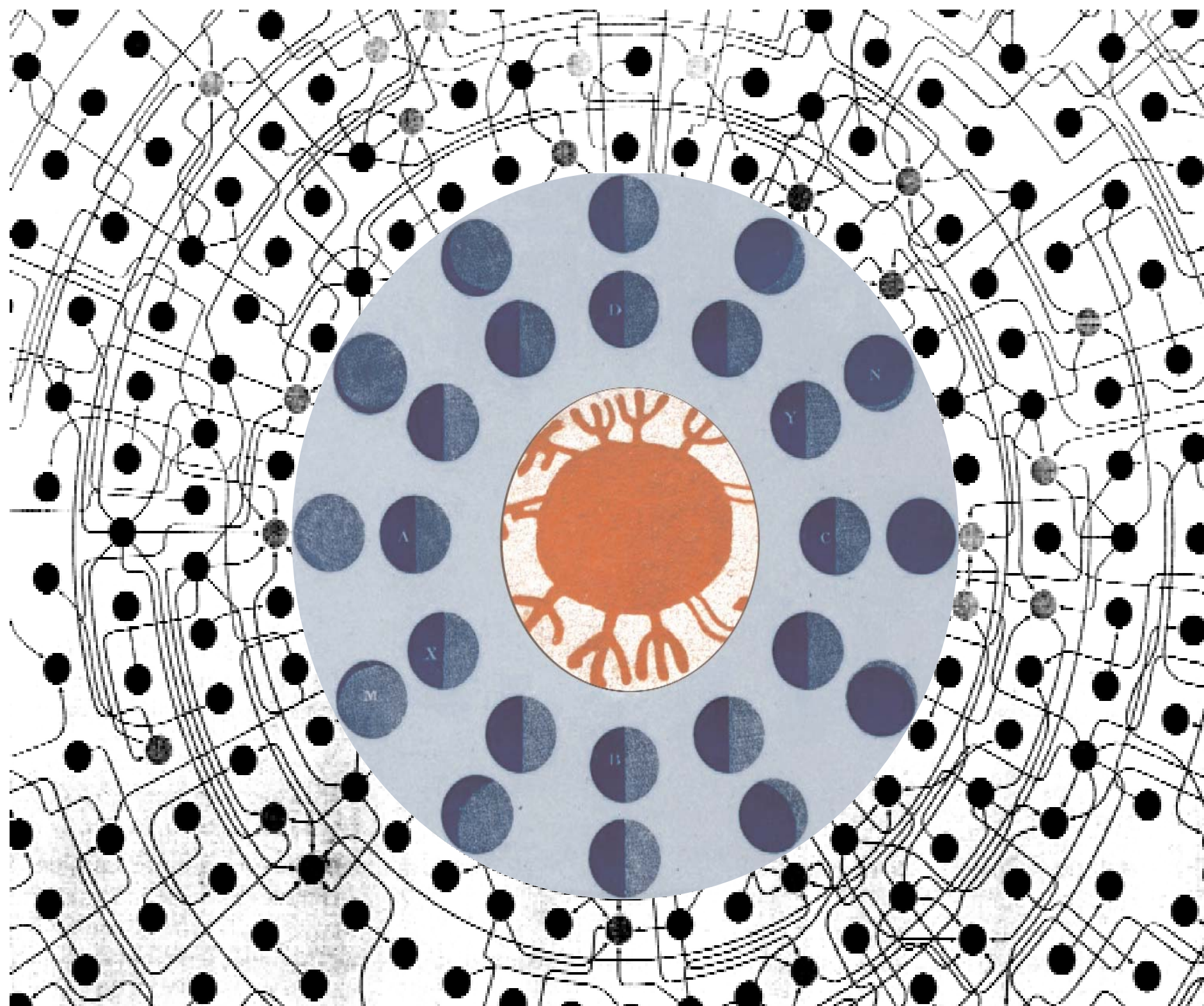








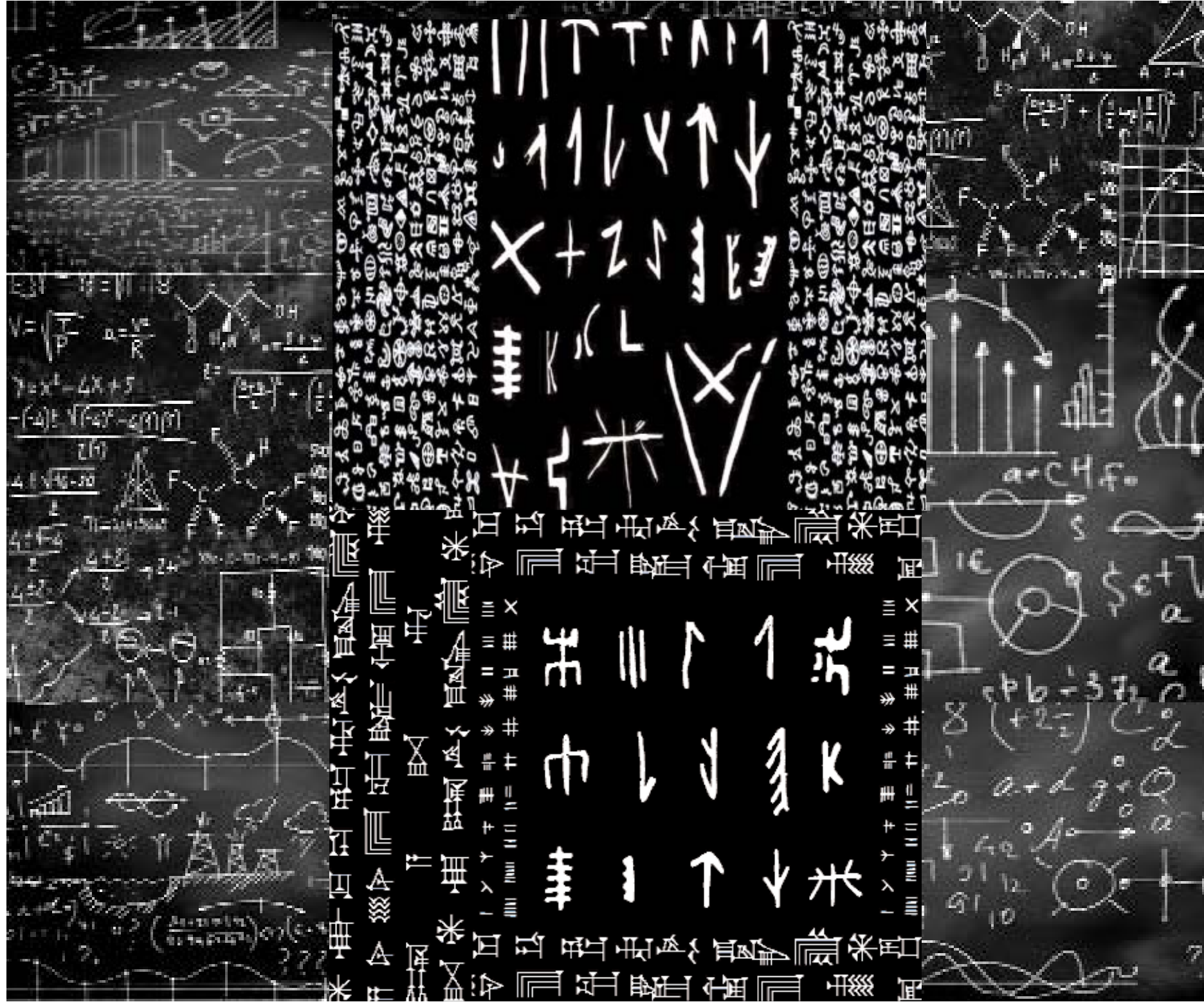










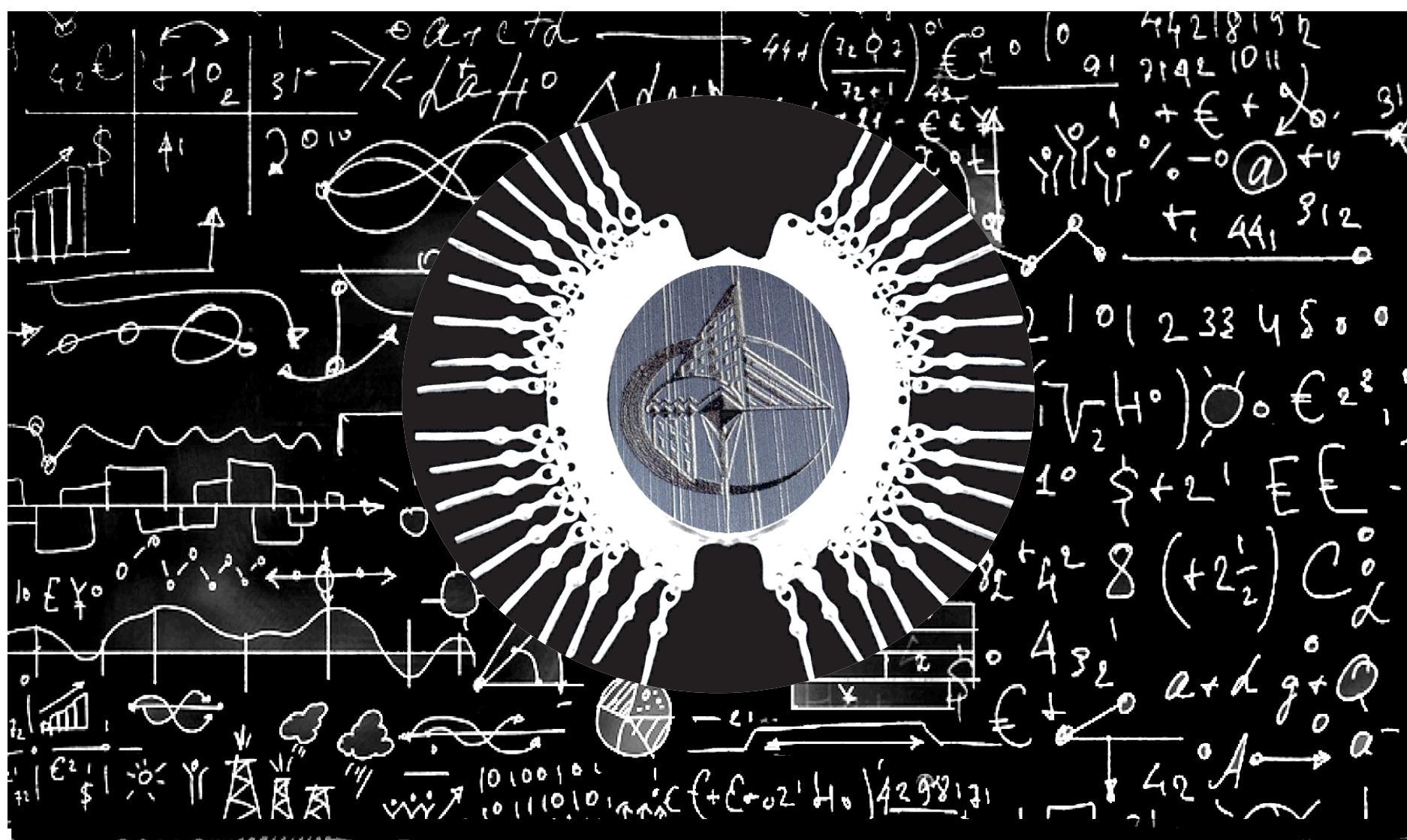




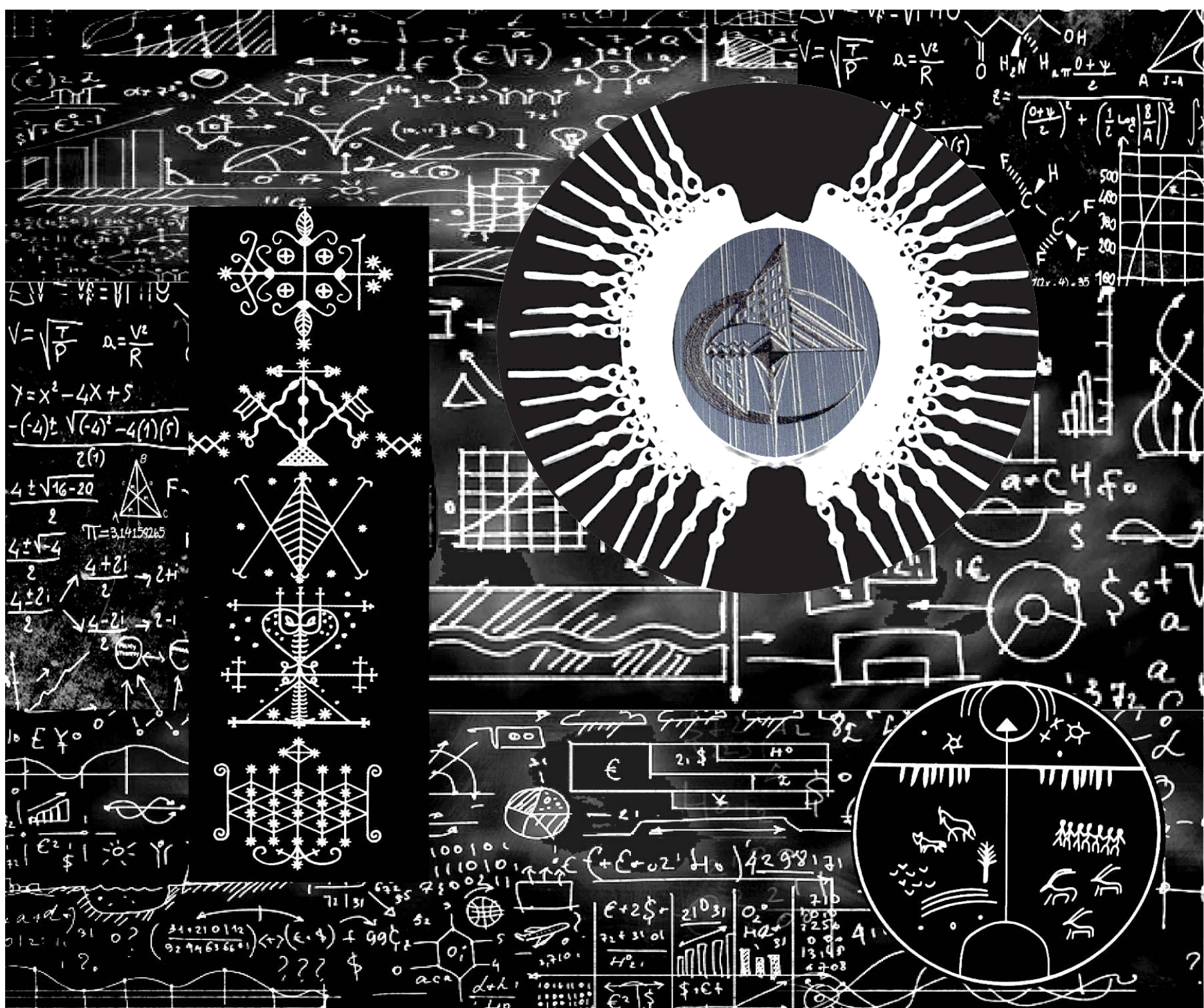
The image shows a blackboard covered in handwritten mathematical work. The notes are dense and cover most of the board. Key elements include:

- Top Left:** A sequence of mappings:  $\rightarrow S(A) \in \mathcal{H} \rightarrow H_1(\mathcal{H}) \in \mathcal{H} \rightarrow \dots$ . Below this, there are more mappings involving  $H_1(\mathcal{H})$  and  $H_2(\mathcal{H})$ .
- Top Center:** A large expression involving a matrix  $\begin{pmatrix} 1 & 0 \\ 0 & 1 \end{pmatrix}$  and a vector  $\begin{pmatrix} x \\ y \end{pmatrix}$ . The expression is  $\begin{pmatrix} 1 & 0 \\ 0 & 1 \end{pmatrix} \begin{pmatrix} x \\ y \end{pmatrix} = \begin{pmatrix} x \\ y \end{pmatrix}$ .
- Top Right:** A diagram showing a sequence of mappings:  $\rightarrow S(A) \in \mathcal{H} \rightarrow H_1(\mathcal{H}) \in \mathcal{H} \rightarrow \dots$ . Below this, there are more mappings involving  $H_1(\mathcal{H})$  and  $H_2(\mathcal{H})$ .
- Middle Left:** A large expression involving a matrix  $\begin{pmatrix} 1 & 0 \\ 0 & 1 \end{pmatrix}$  and a vector  $\begin{pmatrix} x \\ y \end{pmatrix}$ . The expression is  $\begin{pmatrix} 1 & 0 \\ 0 & 1 \end{pmatrix} \begin{pmatrix} x \\ y \end{pmatrix} = \begin{pmatrix} x \\ y \end{pmatrix}$ .
- Middle Center:** A large expression involving a matrix  $\begin{pmatrix} 1 & 0 \\ 0 & 1 \end{pmatrix}$  and a vector  $\begin{pmatrix} x \\ y \end{pmatrix}$ . The expression is  $\begin{pmatrix} 1 & 0 \\ 0 & 1 \end{pmatrix} \begin{pmatrix} x \\ y \end{pmatrix} = \begin{pmatrix} x \\ y \end{pmatrix}$ .
- Middle Right:** A large expression involving a matrix  $\begin{pmatrix} 1 & 0 \\ 0 & 1 \end{pmatrix}$  and a vector  $\begin{pmatrix} x \\ y \end{pmatrix}$ . The expression is  $\begin{pmatrix} 1 & 0 \\ 0 & 1 \end{pmatrix} \begin{pmatrix} x \\ y \end{pmatrix} = \begin{pmatrix} x \\ y \end{pmatrix}$ .
- Bottom Left:** A large expression involving a matrix  $\begin{pmatrix} 1 & 0 \\ 0 & 1 \end{pmatrix}$  and a vector  $\begin{pmatrix} x \\ y \end{pmatrix}$ . The expression is  $\begin{pmatrix} 1 & 0 \\ 0 & 1 \end{pmatrix} \begin{pmatrix} x \\ y \end{pmatrix} = \begin{pmatrix} x \\ y \end{pmatrix}$ .
- Bottom Center:** A large expression involving a matrix  $\begin{pmatrix} 1 & 0 \\ 0 & 1 \end{pmatrix}$  and a vector  $\begin{pmatrix} x \\ y \end{pmatrix}$ . The expression is  $\begin{pmatrix} 1 & 0 \\ 0 & 1 \end{pmatrix} \begin{pmatrix} x \\ y \end{pmatrix} = \begin{pmatrix} x \\ y \end{pmatrix}$ .
- Bottom Right:** A large expression involving a matrix  $\begin{pmatrix} 1 & 0 \\ 0 & 1 \end{pmatrix}$  and a vector  $\begin{pmatrix} x \\ y \end{pmatrix}$ . The expression is  $\begin{pmatrix} 1 & 0 \\ 0 & 1 \end{pmatrix} \begin{pmatrix} x \\ y \end{pmatrix} = \begin{pmatrix} x \\ y \end{pmatrix}$ .





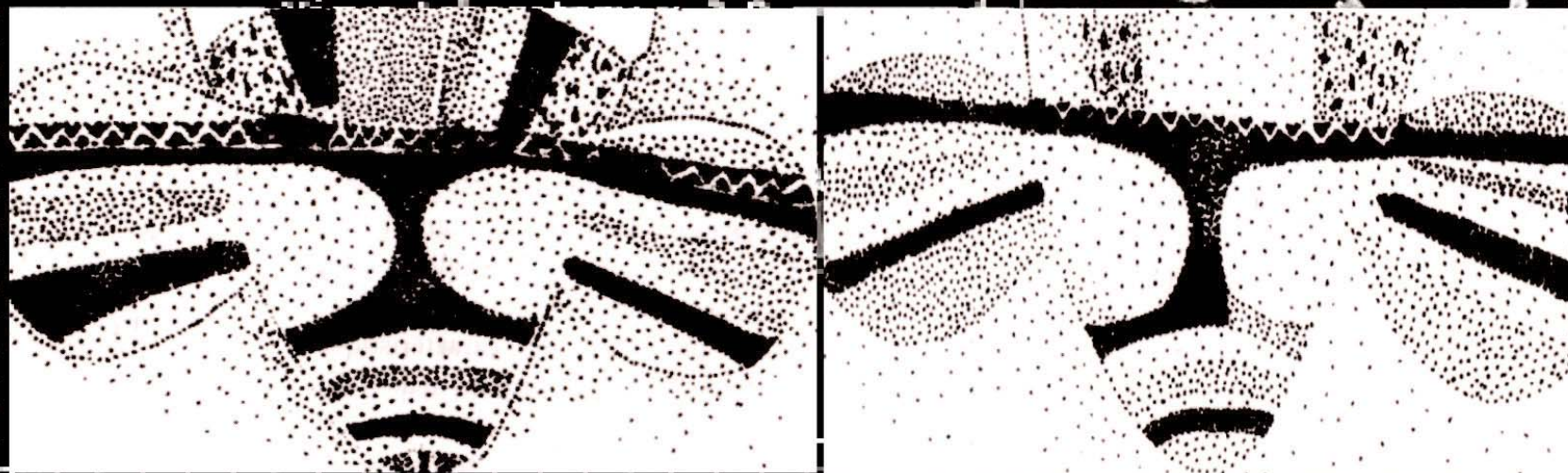












Virus Laboratory v.2.0  
Virus Laboratory version 2.0 Is Written By [Damen].  
Press The Number Of An Option To Change It.







$$A \cdot \Delta B \geq \frac{1}{2} \left| \left\langle \left[ A, \hat{B} \right] \right\rangle_T - \hbar^2 \frac{\partial^2 \Psi(\vec{r}, t)}{\partial t^2} \right|$$

$$\hbar^2 \frac{\partial^2 \Psi(\vec{r}, t)}{\partial t^2} = -\hbar^2 c^2 \Delta \Psi(\vec{r}, t) + m^2 c^4 \Psi(\vec{r}, t)$$

$$R_{\mu\nu} - \frac{1}{2} g_{\mu\nu} R - \Lambda g_{\mu\nu} = \frac{8\pi G}{c^4} T_{\mu\nu} \hbar^2 \frac{\partial^2 \Psi(\vec{r}, t)}{\partial t^2} = -\hbar^2 c^2 \Delta \Psi(\vec{r}, t) + m^2 c^4 \Psi(\vec{r}, t)$$

$$|\psi\rangle = \begin{pmatrix} \psi_1 \\ \psi_2 \\ \vdots \\ \psi_N \end{pmatrix}_\epsilon = \begin{bmatrix} \psi_1 \\ \psi_2 \\ \vdots \\ \psi_N \end{bmatrix} \cdot [|u_1\rangle \quad |u_2\rangle \quad \cdots \quad |u_N\rangle] \quad \langle\phi| = \begin{pmatrix} \phi_1 \\ \phi_2 \\ \vdots \\ \phi_N \end{pmatrix}_{\epsilon^*} = [\phi_1 \quad \phi_2 \quad \cdots \quad \phi_N] \cdot \begin{bmatrix} \langle u_1| \\ \langle u_2| \\ \vdots \\ \langle u_N| \end{bmatrix} = \begin{pmatrix} \psi_1 \\ \psi_2 \\ \vdots \\ \psi_N \end{pmatrix}_\epsilon = \begin{bmatrix} \psi_1 \\ \psi_2 \\ \vdots \\ \psi_N \end{bmatrix} \cdot [|u_1$$



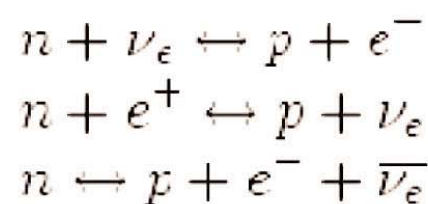
$$\langle\phi|\psi\rangle = \left(\begin{pmatrix}\phi_1\\ \phi_2\\ \vdots\\ \phi_N\end{pmatrix}_{\epsilon^*}, \begin{pmatrix}\psi_1\\ \psi_2\\ \vdots\\ \psi_N\end{pmatrix}_{\epsilon}\right) = [\phi_1 \quad \phi_2 \quad \cdots \quad \phi_N] \cdot \begin{bmatrix}\psi_1\\ \psi_2\\ \vdots\\ \psi_N\end{bmatrix} = \sum_{n=1}^N \phi_n \cdot \psi_n \langle\phi| = \begin{pmatrix}\phi_1\\ \phi_2\\ \vdots\\ \phi_N\end{pmatrix}_{\epsilon^*} = [\phi_1 = \left(\begin{pmatrix}\phi_1\\ \phi_2\\ \vdots\\ \phi_N\end{pmatrix}_{\epsilon^*}, \begin{pmatrix}\psi_1\\ \psi_2\\ \vdots\\ \psi_N\end{pmatrix}_{\epsilon}\right) =$$

$$\hbar^2 \frac{\partial^2 \Psi(\vec{r}, t)}{\partial t^2} = -\hbar^2 c^2 \Delta \Psi(\vec{r}, t) + m^2 c^4 \Psi(\vec{r}, t) \quad \frac{\partial^2 \Psi(\vec{r}, t)}{\partial t^2} = -\hbar^2 c^2 \Delta \Psi(\vec{r}, t) + m^2 c^4 \Psi(\vec{r}, t)$$

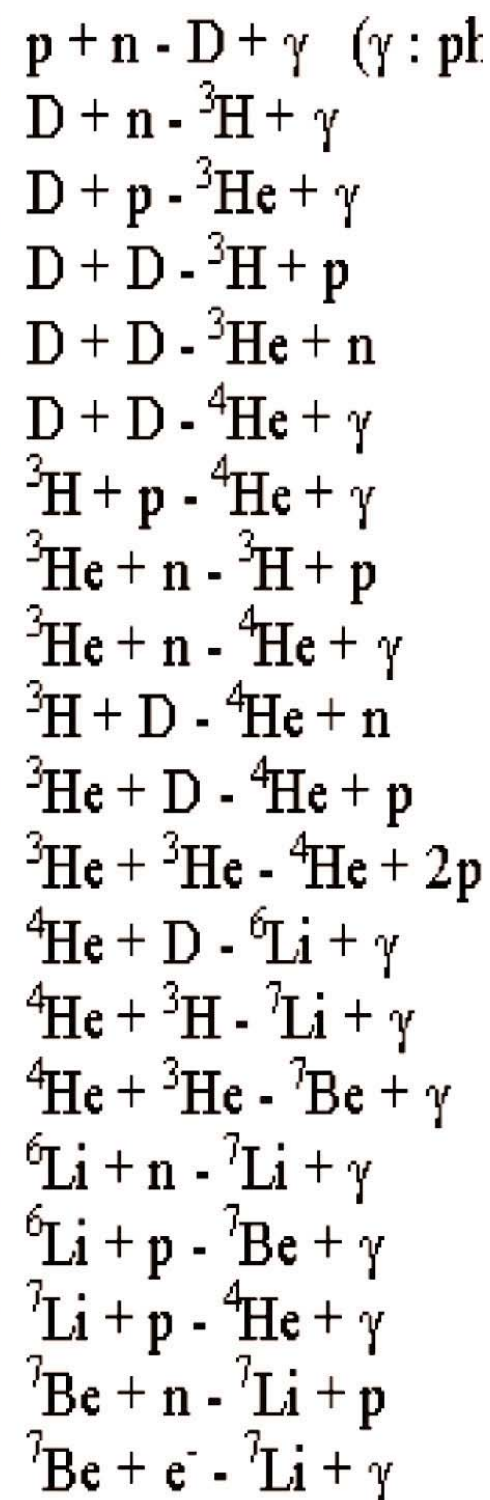
$$R - \Lambda g_{\mu\nu} = \frac{8\pi G}{c^4} T_{\mu\nu} - \hbar^2 \frac{\partial^2 \Psi(\vec{r}, t)}{\partial t^2} = -\hbar^2 c^2 \Delta \Psi(\vec{r}, t) + m^2 c^4 \Psi(\vec{r}, t)$$

$$\hbar^2 \frac{\partial^2 \Psi(\vec{r}, t)}{\partial t^2} = -\hbar^2 c^2 \Delta \Psi(\vec{r}, t) + m^2 c^4 \Psi(\vec{r}, t)$$





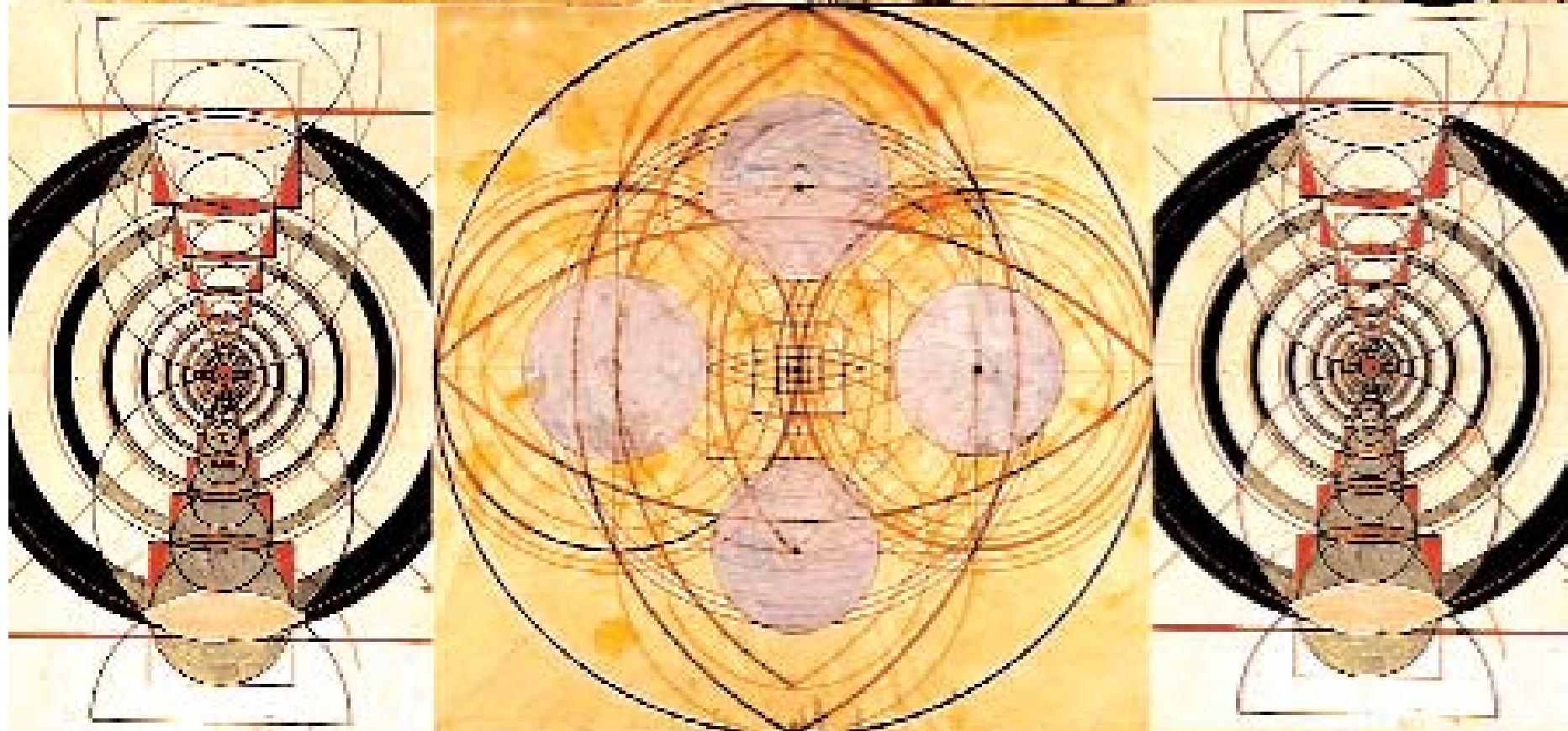
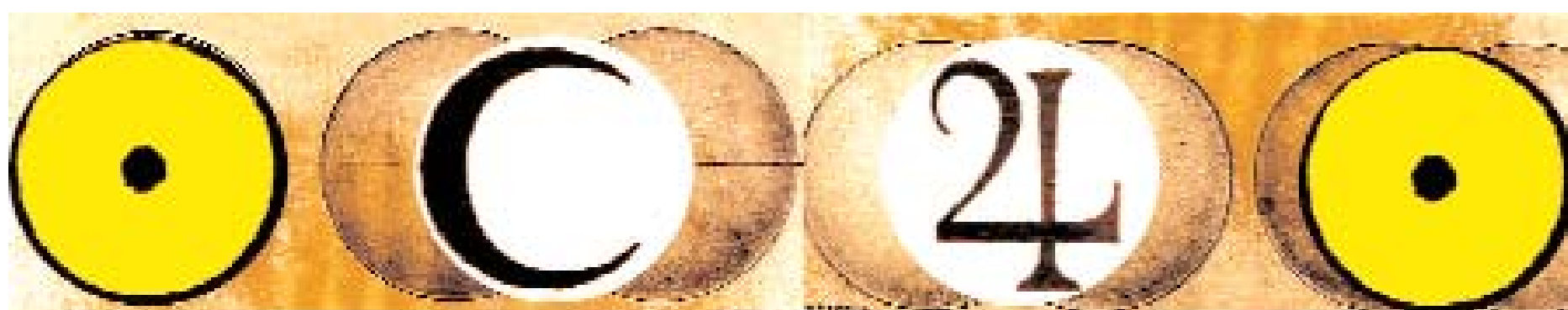
$$\frac{n_p}{n_n} = e^{-\frac{E_p - E_n}{kT}} = e^{-\frac{\Delta mc^2}{kT}}$$













$$\Phi=\sigma T^4$$



$$H=\sum$$

$$\varphi^{Einstein}=\frac{6\,\pi\,G\,M_S}{c^2\,a\,(1-e^2)}$$

$$\dagger a_k$$

$$\vec{F}_{12}=\Delta G\frac{m_1m_2}{d^2}\vec{u}_{12}$$

$$\Delta\varphi=\varphi_{exp}-\varphi_{RG}=$$



$$g(0)=a\;;\;g(n+1)=f(g(n))y=g(x)\;?\;? \;|\; \hat{a}(l,0)=a\;?\;? \;i < x\; \hat{a}(l,\;i+1)=f(\hat{a}(l,\;i))$$

$$\frac{24\,\pi^3\,a^2}{T^2\,c^2\,(1-e^2)}$$

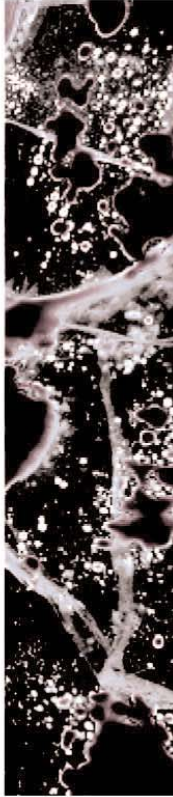


$$g(0)=a\;;\;g(n+1)=f(g(n))y=g(x)\;?\;? \;|\; \hat{a}(l,0)=a\;?\;? \;i < x\; \hat{a}(l,\;i+1)=f(\hat{a}(l,\;i))$$



$$R_{\mu\nu} \, - \, \frac{1}{2} \, g_{\mu\nu} \, R \, - \, \Lambda \, g_{\mu\nu} \, = \, \frac{8\pi G}{c^4}$$

$$\begin{array}{l} ?xA? ?xB? ?x(A?B)\;;\; ?x?yA(x,y)\;?N?z?x?z?y?zA(x,y)\;;\; ?xA\\ ??yB? ?x?y(A?B)\;;\; ?x?z?yA(x,y)\;?N?u?x?z?y?uA(x,y). \end{array}$$



$$g(0)=a\;;\;g(n+1)=f(g(n))y=g(x)\;?\;? \;|\; \hat{a}(l,0)=a\;?\;? \;i < x\; \hat{a}(l,\;i+1)=f(\hat{a}(l,\;i))\;?\;y=\hat{a}(l,\;x)]$$



$$\pm\,0.45$$

$$\lambda=\frac{n}{p}$$

$$\lambda_{max}=\left|\frac{hc}{4,965\cdot kT}=\frac{hc}{2,898\cdot 10^{-3}T}\right.$$

$$\frac{hc}{4,965\cdot kT}=\frac{hc}{2,898\cdot 10^{-3}T}$$

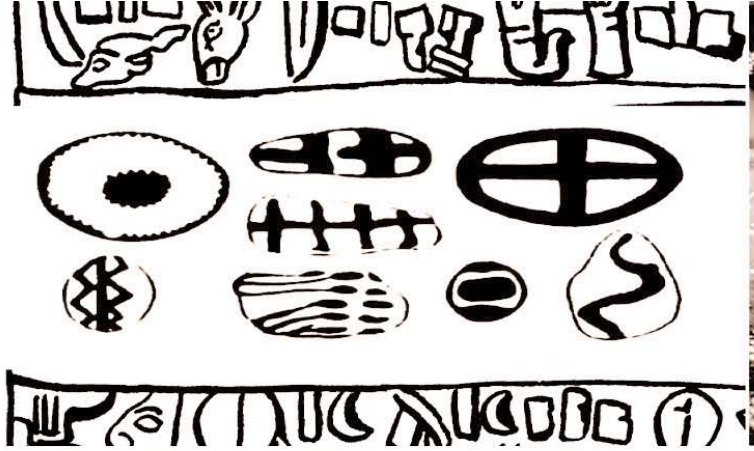
$$\varphi_{Newton}$$

$$\varphi_{Einstein}\simeq 0.08$$

$$\varphi_{Newton}$$

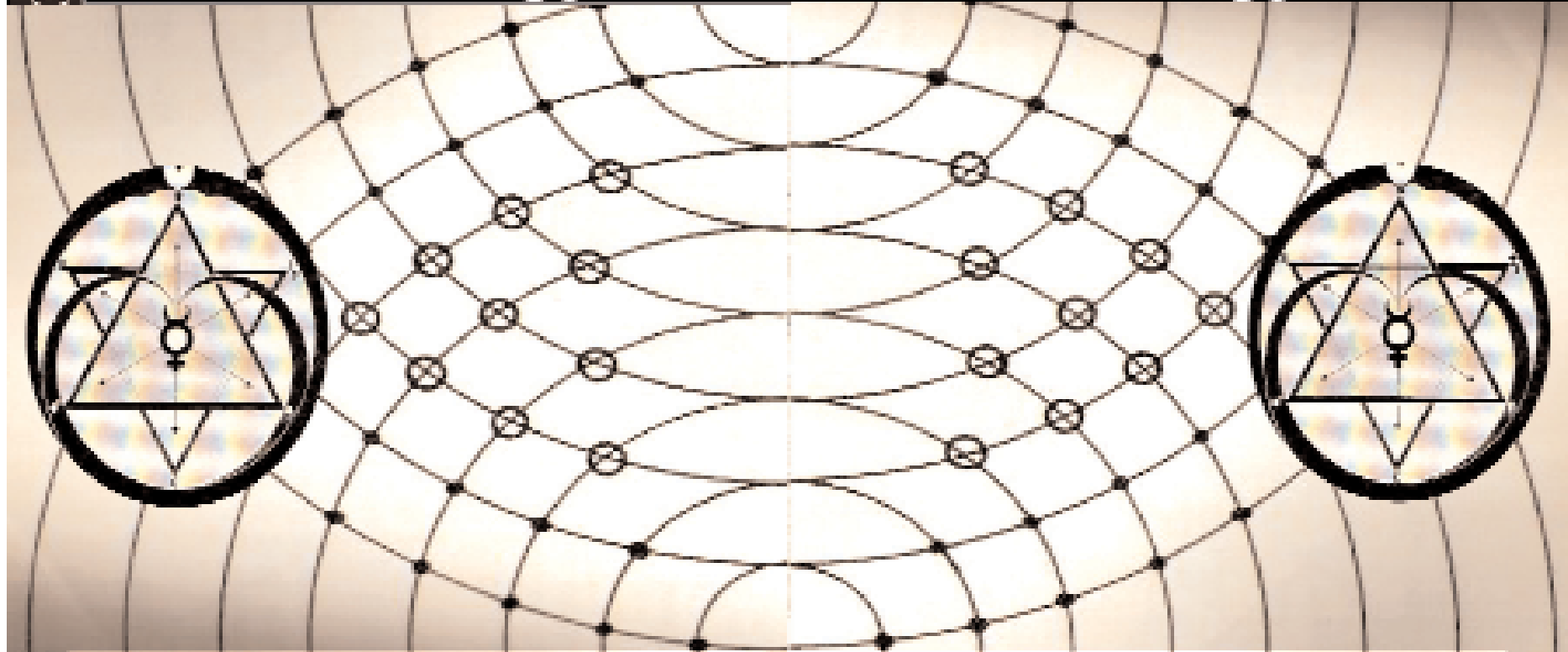
$$\varphi_{Einstein}\simeq 0.08$$

$$\lambda_{max}=\frac{hc}{4,965\cdot kT}=\frac{2,898\cdot 10^{-3}}{T}$$





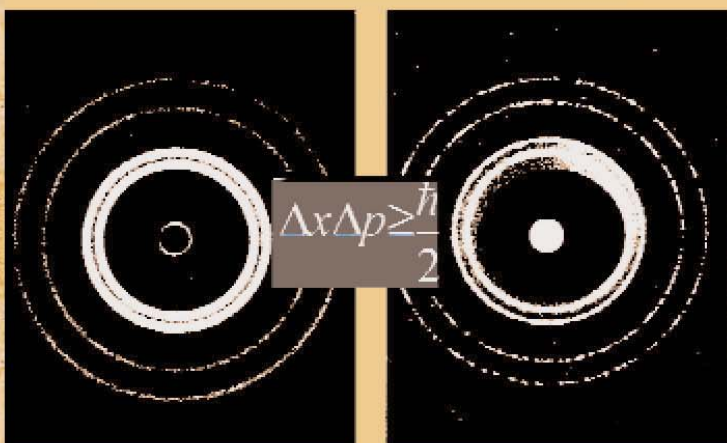
$$\begin{aligned} & \hbar^2 \frac{\partial^2 \Psi(\vec{r}, t)}{\partial t^2} - \hbar^2 c^2 \Delta \Psi(\vec{r}, t) + m^2 c^4 \Psi(\vec{r}, t) = \hbar^2 \frac{\partial^2 \Psi(\vec{r}, t)}{\partial t^2} - \hbar^2 c^2 \Delta \Psi(\vec{r}, t) + m^2 c^4 \Psi(\vec{r}, t) \\ & \langle \phi | \phi \rangle = \left( \begin{pmatrix} \phi_1 \\ \phi_2 \\ \vdots \\ \phi_N \end{pmatrix}, \begin{pmatrix} \phi_1 \\ \phi_2 \\ \vdots \\ \phi_N \end{pmatrix} \right) = |\phi_1 \ \phi_2 \ \cdots \ \phi_N| \cdot \begin{bmatrix} \phi_1 \\ \phi_2 \\ \vdots \\ \phi_N \end{bmatrix} = \sum_{i=1}^N \phi_i \cdot \phi_i \langle \phi | = \begin{pmatrix} \phi_1 \\ \phi_2 \\ \vdots \\ \phi_N \end{pmatrix} = |\phi| \cdot \left( \begin{pmatrix} \phi_1 \\ \phi_2 \\ \vdots \\ \phi_N \end{pmatrix}, \begin{pmatrix} \phi_1 \\ \phi_2 \\ \vdots \\ \phi_N \end{pmatrix} \right) \\ & H |\psi(t)\rangle = i\hbar \frac{\partial}{\partial t} |\psi(t)\rangle H |\psi(t)\rangle = i\hbar \frac{\partial}{\partial t} |\psi(t)\rangle \end{aligned}$$



$$\begin{aligned} & H |\psi(t)\rangle = i\hbar \frac{\partial}{\partial t} |\psi(t)\rangle H |\psi(t)\rangle = i\hbar \frac{\partial}{\partial t} |\psi(t)\rangle \\ & |\phi\rangle = \begin{pmatrix} \phi_1 \\ \phi_2 \\ \vdots \\ \phi_N \end{pmatrix} \cdot \begin{bmatrix} \phi_1 \\ \phi_2 \\ \vdots \\ \phi_N \end{bmatrix} = |\phi_1 \ \phi_2 \ \cdots \ \phi_N| \langle \phi| = \begin{pmatrix} \phi_1 \\ \phi_2 \\ \vdots \\ \phi_N \end{pmatrix} = |\phi_1 \ \phi_2 \ \cdots \ \phi_N| \cdot \begin{bmatrix} \langle \phi_1| \\ \langle \phi_2| \\ \vdots \\ \langle \phi_N| \end{bmatrix} = \begin{pmatrix} \phi_1 \\ \phi_2 \\ \vdots \\ \phi_N \end{pmatrix} = \begin{bmatrix} \phi_1 \\ \phi_2 \\ \vdots \\ \phi_N \end{bmatrix} \cdot |\phi_1 \ \phi_2 \ \cdots \ \phi_N| \\ & R_{\mu\nu} = \frac{1}{2} g_{\mu\nu} R - \Lambda g_{\mu\nu} = \frac{8\pi G}{c^4} T_{\mu\nu} \hbar^2 \frac{\partial^2 \Psi(\vec{r}, t)}{\partial t^2} = -\hbar^2 c^2 \Delta \Psi(\vec{r}, t) + m^2 c^4 \Psi(\vec{r}, t) \end{aligned}$$



$$\left( -\frac{\hbar^2}{2m_0} \nabla^2 + V(\mathbf{r}) \right) \psi = E\psi$$

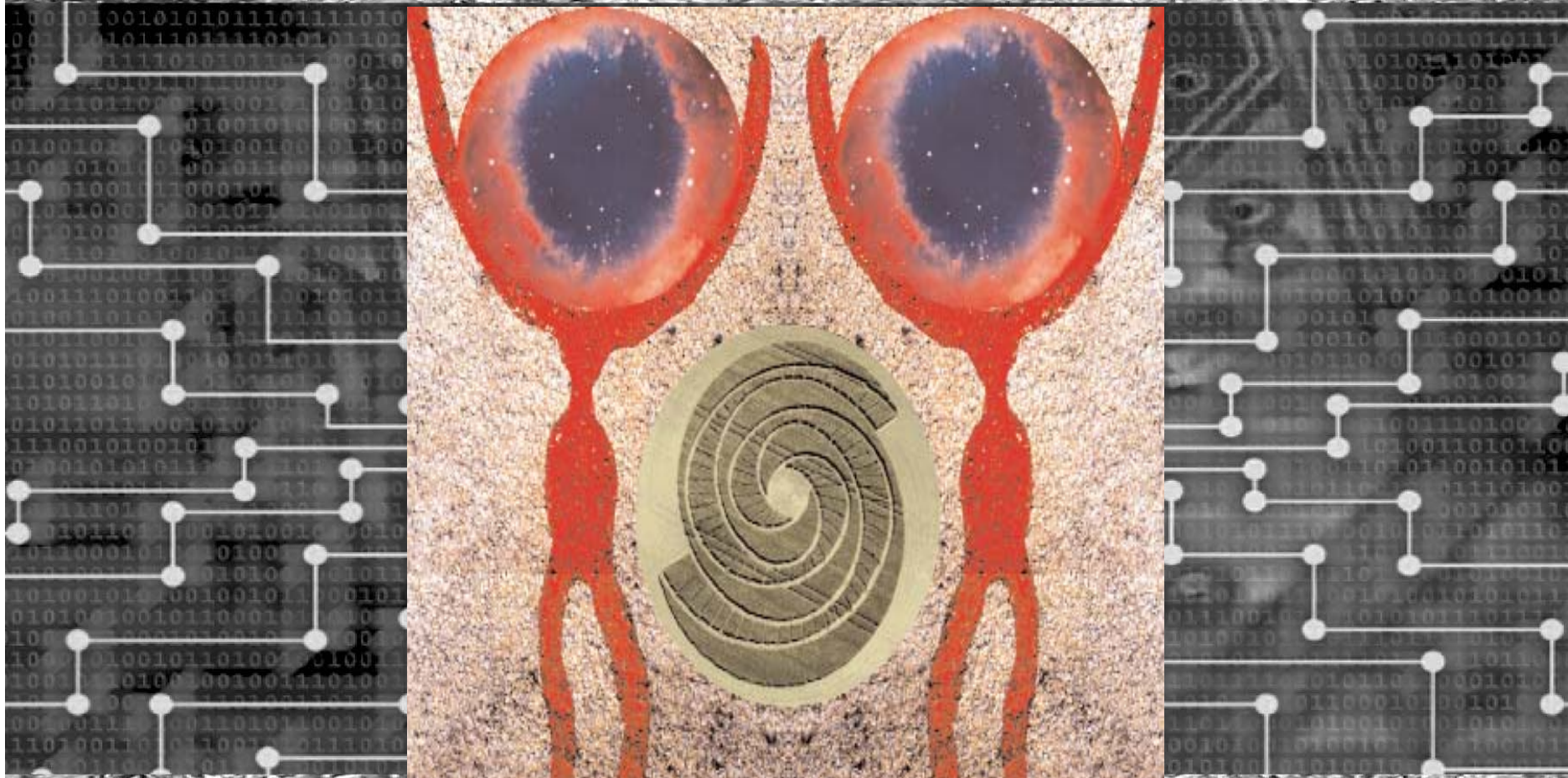


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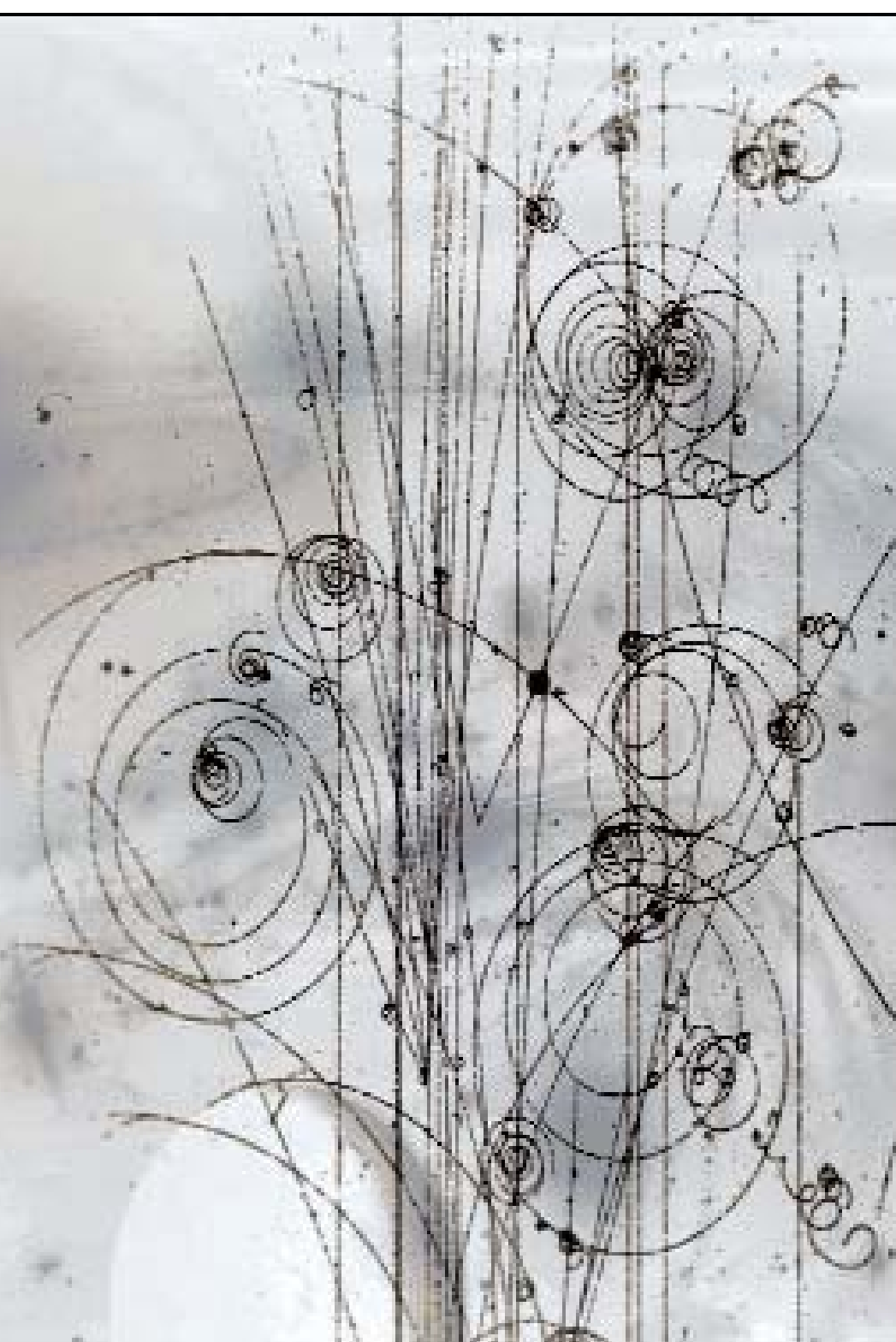




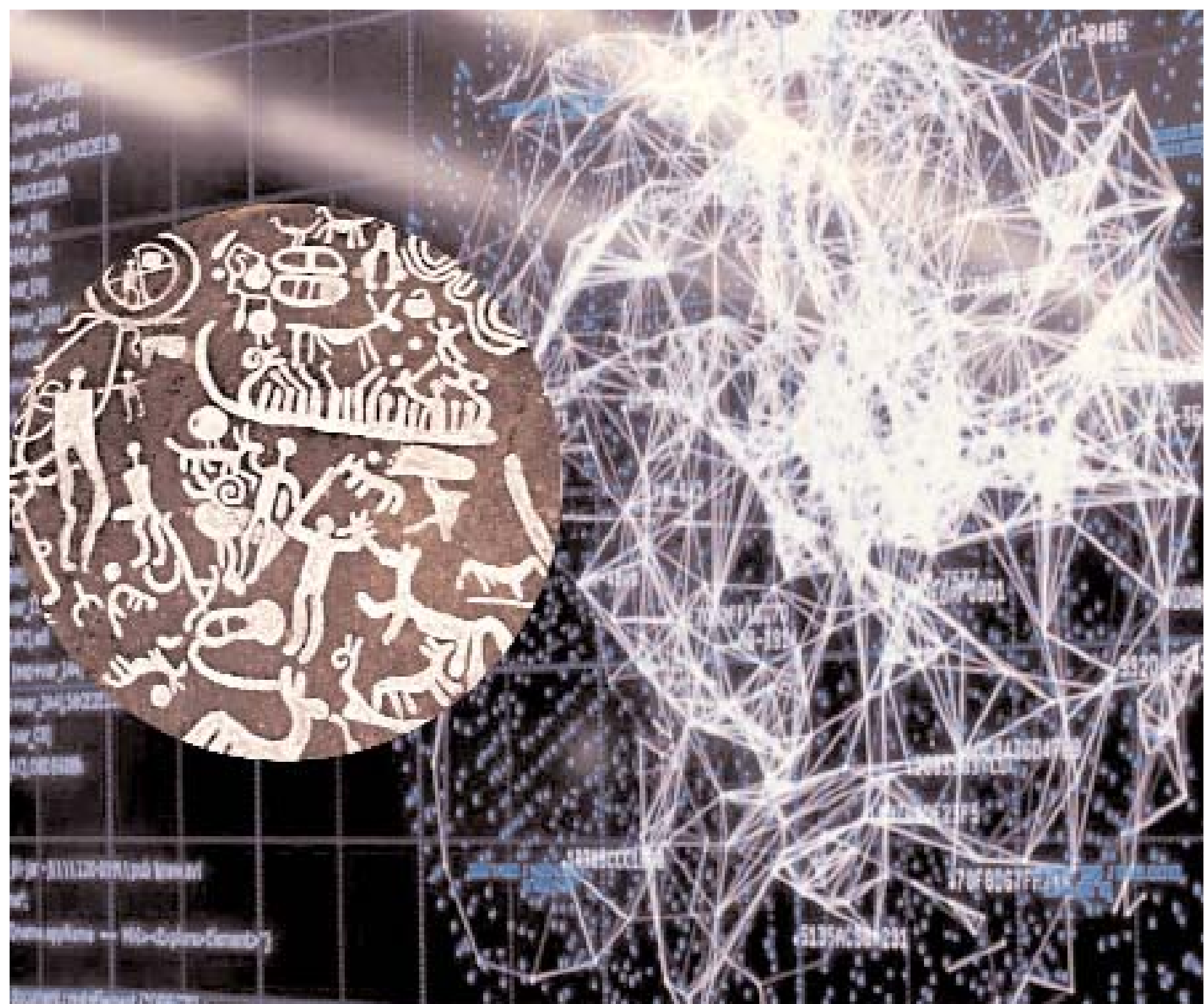




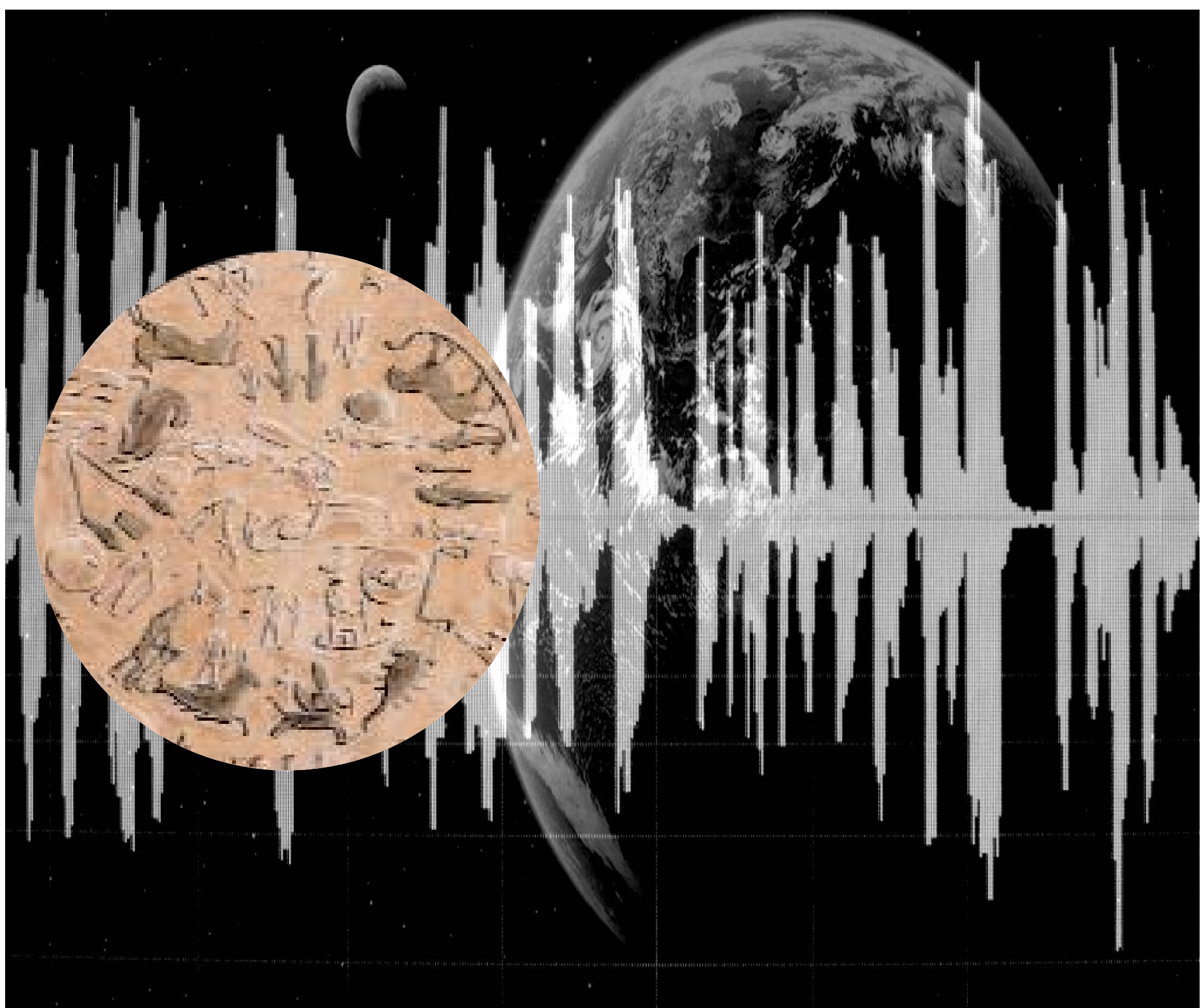














$$Y_{i+1} = Y_i + h \cdot K_i$$

$$B = \begin{pmatrix} 2 & 1 & -1 & 0 \\ 3 & 0 & 1 & 2 \end{pmatrix}$$

$$(x_1 - y_1)^2 = \frac{2xy}{1-y^2} \quad \text{by } x = \frac{\sin \alpha}{\cos \alpha}$$

$$\begin{aligned} \lambda x - y + z &= \\ x + \lambda y + z &= \\ x + y + z &= \end{aligned}$$

$$\text{rad } |dx|/dp$$

$$\lim_{n \rightarrow \infty} \frac{\sqrt{n^2+1}+n}{3\sqrt{3n^2+2n}-1}$$

$$\frac{a}{\sin \alpha} = \frac{b}{\sin \beta} = 44$$



$$y = \sqrt[3]{x+1}$$

$$A_1 = \begin{pmatrix} 1 & 1 & 1 \\ 1 & 2 & 1 \\ 1 & 3 & 1 \end{pmatrix} \quad C = \begin{pmatrix} 0 & 1 \\ 1 & 0 \end{pmatrix}$$

$$a^2 + b^2 = c^2$$

$$\lambda, \beta, \gamma \in \mathbb{C}$$

$$f(x) = 2^{-x} + 1, \epsilon = 0.005$$

$$e^2 - \chi \gamma z = e; A(0, e; 1)$$

$$\lim_{x \rightarrow 0} \frac{a^{2x} - 1}{5x} = \frac{2}{5}$$

$$k|4M| \neq 0; p \neq 0$$

$$+46v^3 - 42 \geq 0$$

$$\Sigma = m c^2$$

?

4C

44

44

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44



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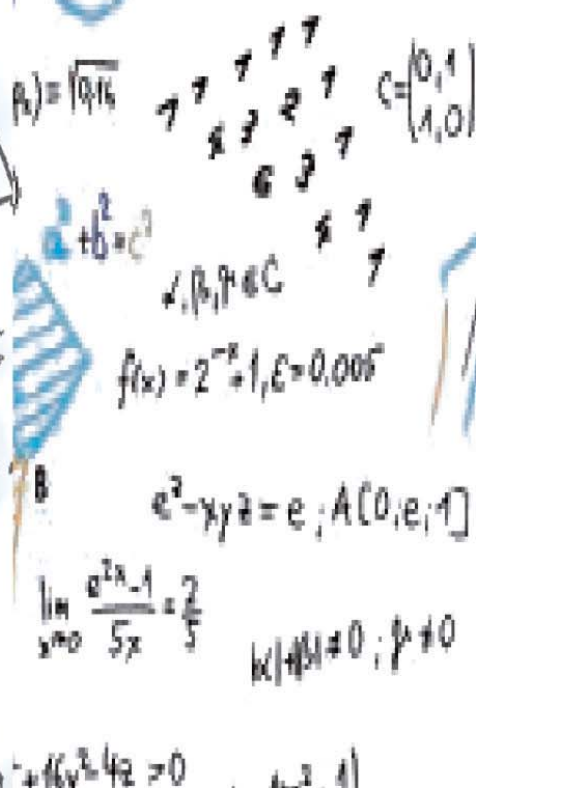
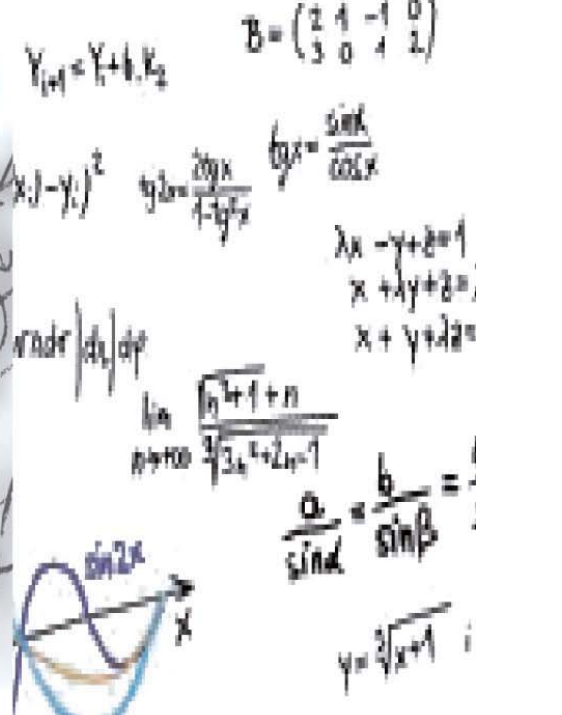
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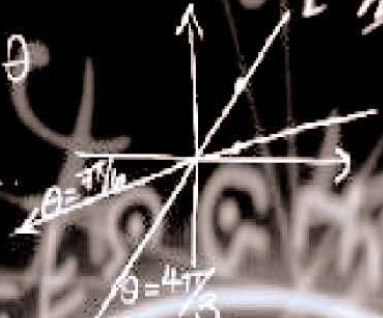


$$r = \sin \theta \quad \text{for } 0 \leq \theta \leq \pi/2 \quad (1, 2) \quad (3, 4) \quad 0 \leq \theta \leq 2\pi \rightarrow (3)$$

$$P_2 (V_1 - V_2) = \underline{\underline{P_2 (V_2 - V_1)}}$$

$$dV = - \left( \frac{P}{nR} \right) dV \quad \text{Because } \frac{1}{r} = \frac{1}{\sin \theta}$$

$$R(T_3 - T_2) = -nR \cdot \left[ \frac{P_2 V_1}{nR} - \frac{P_2 V_2}{nR} \right] = -nR \cdot \left[ \frac{P_2 V_1}{nR} - \frac{P_2 V_2}{nR} \right]$$



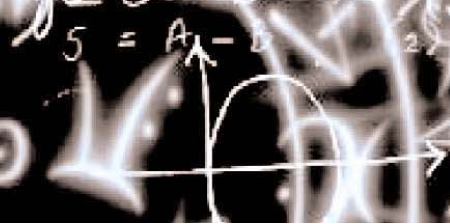
$\theta$	$r$
$7\pi/6$	$-1/2$
$4\pi/3$	$-\sqrt{3}/2$



$$R(T_3 - T_2) = \frac{3}{2} nR \left[ \frac{P_2 V_1}{nR} - \frac{P_2 V_2}{nR} \right]$$

$$r = \cos \theta \quad \text{for } 0 \leq \theta \leq \pi/2$$

$$\Delta U - W = \frac{P_2 (V_1 - V_2)}{2} = \frac{P_2 (V_1 - V_2)}{2}$$





$$r = \sin \theta \quad \text{for } 0 \leq \theta \leq \pi/2 \quad (1, \pi/2), (3, \pi/2) \quad 0 \leq \theta \leq \pi$$

$$2 \cdot (V_1 - V_2) = \underline{\underline{P_2 (V_2 - V_1)}}$$

$$dw = - \left( \frac{P}{r} \right) dr$$

$$2(T_2 - T_1) = -\kappa R \cdot \left[ \frac{P_1 V_1}{\kappa R} - \frac{P_2 V_2}{\kappa R} \right] = -2(V_2 - V_1)$$

$$r = \sin \theta$$



$\theta$	$r$
$\pi/6$	$-1/2$
$4\pi/3$	$-\sqrt{3}/2$

$\theta$	$r$
$\pi/6$	$1/2$
$\pi/3$	$\sqrt{3}/2$

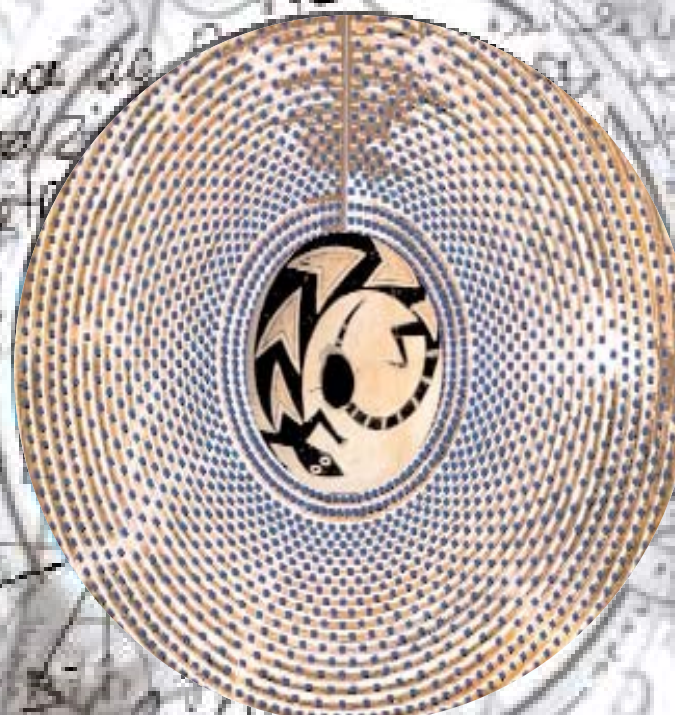
$$\kappa R (T_2 - T_1) = \frac{3}{2} \kappa R \left[ \frac{P_1 V_1}{\kappa R} - \frac{P_2 V_2}{\kappa R} \right] = \frac{3}{2} (P_1 V_1 - P_2 V_2)$$

$$r = \cos \theta \quad \text{for } 0 \leq \theta \leq \pi/2$$

$$dV = \frac{P}{r^2} dr$$

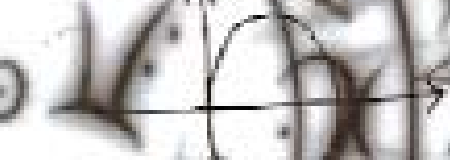
$$= \frac{1}{2} \ln \left( \frac{V_1}{V_2} \right)$$

Because of the... it is...



$$r = \cos \theta \quad \text{for } \pi/2 \leq \theta \leq \pi$$

$$S = A -$$











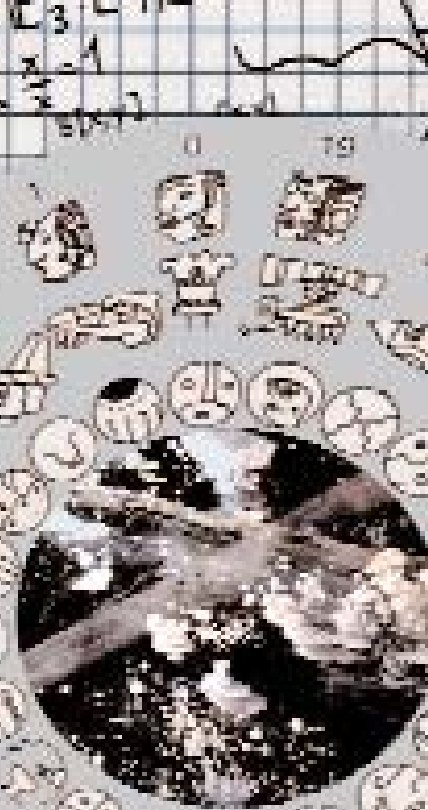
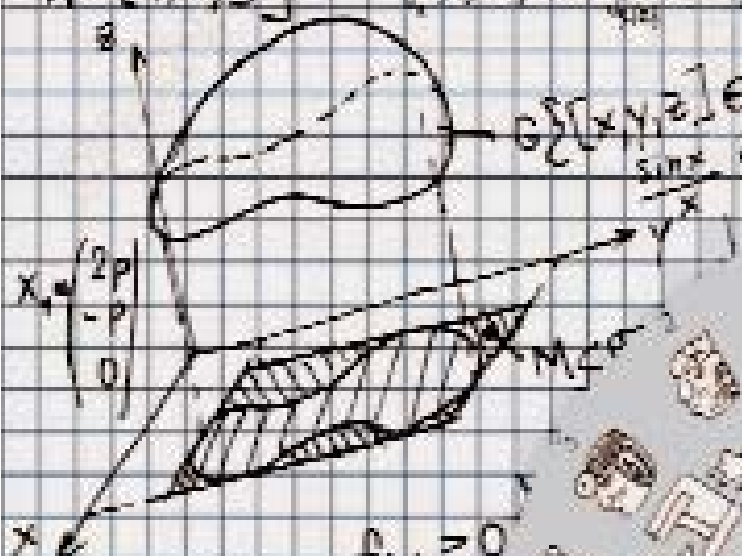


$$A = [1, 0, 3]$$

$$\int_{\gamma} \langle g, \dot{\gamma} \rangle dt = \int_a^b \langle g(\gamma(t)), \dot{\gamma}(t) \rangle dt = \int_a^b \langle F(\gamma(t)), \dot{\gamma}(t) \rangle dt$$

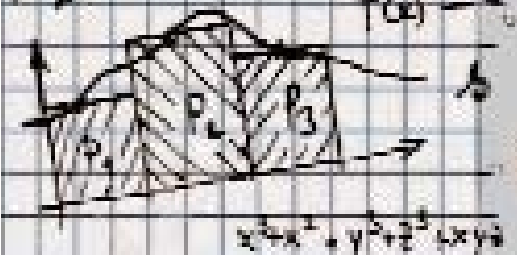
$$\{[x, y] \in M, 0 \leq z = f(x, y)\}$$

$$\left( \frac{\partial \varphi}{\partial x}, \frac{\partial \varphi}{\partial y} \right) = (U, V)$$



$$\varphi = g \circ \alpha(A) = (F_x'(A), F_y'(A), F_z'(A))$$

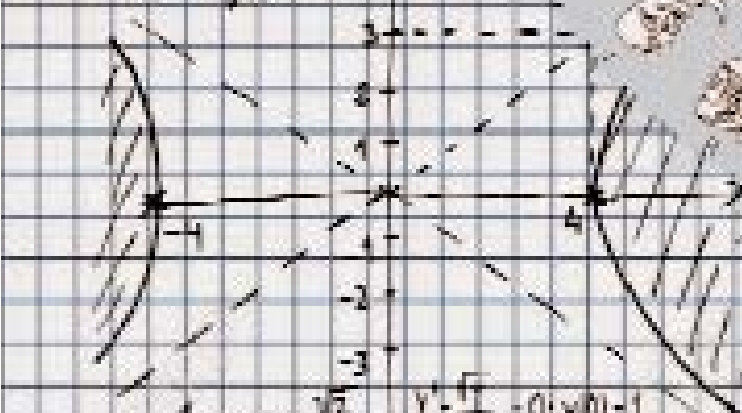
$$\Delta A = \left| \frac{\partial^2 f}{\partial x^2}(A), \frac{\partial^2 f}{\partial x \partial y}(A), \frac{\partial^2 f}{\partial y \partial x}(A), \frac{\partial^2 f}{\partial y^2}(A) \right|$$



$$\overline{y^2} = 2 \sum_{i=1}^n (A_i x_i) =$$

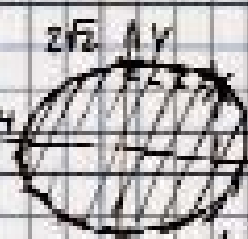
$$m_i = \int_{\Omega} f(x_i) dx_i dy_i dz_i$$

$$R_0 = \frac{\sqrt{1000}}{3\sqrt{\pi}} = \frac{10}{3\sqrt{\pi}} \approx 1.6$$

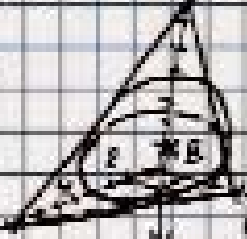


$$\Delta(A_z) = \begin{vmatrix} 0 & 2\sqrt{2} \\ 2\sqrt{2} & 0 \end{vmatrix}$$

$$\frac{\partial}{\partial x} = 2, \frac{\partial}{\partial y} = 2$$



$$\frac{x^2}{16} + \frac{y^2}{8} \leq 1$$

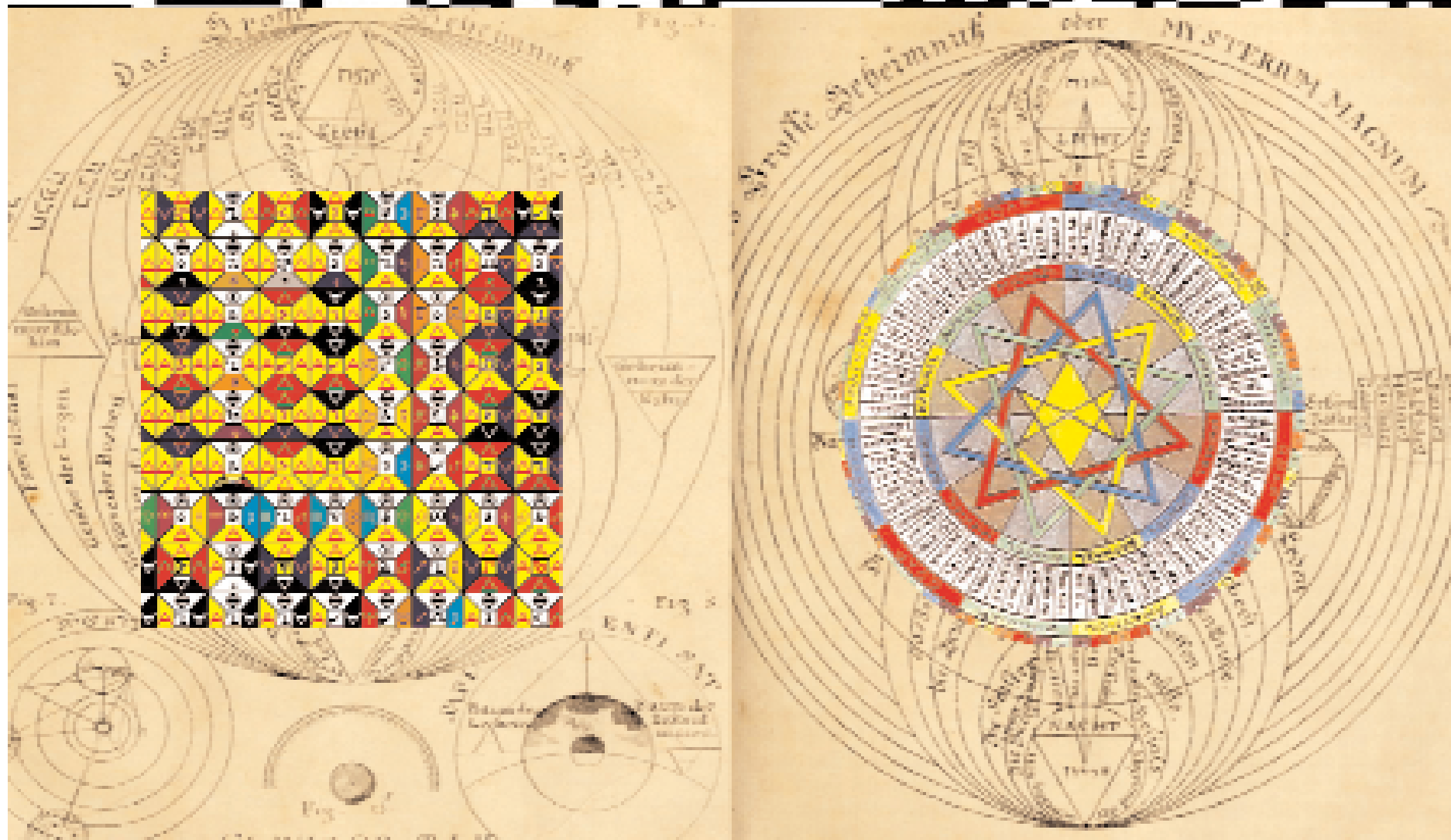


$$x^2 + y^2 + z^2 = 1$$

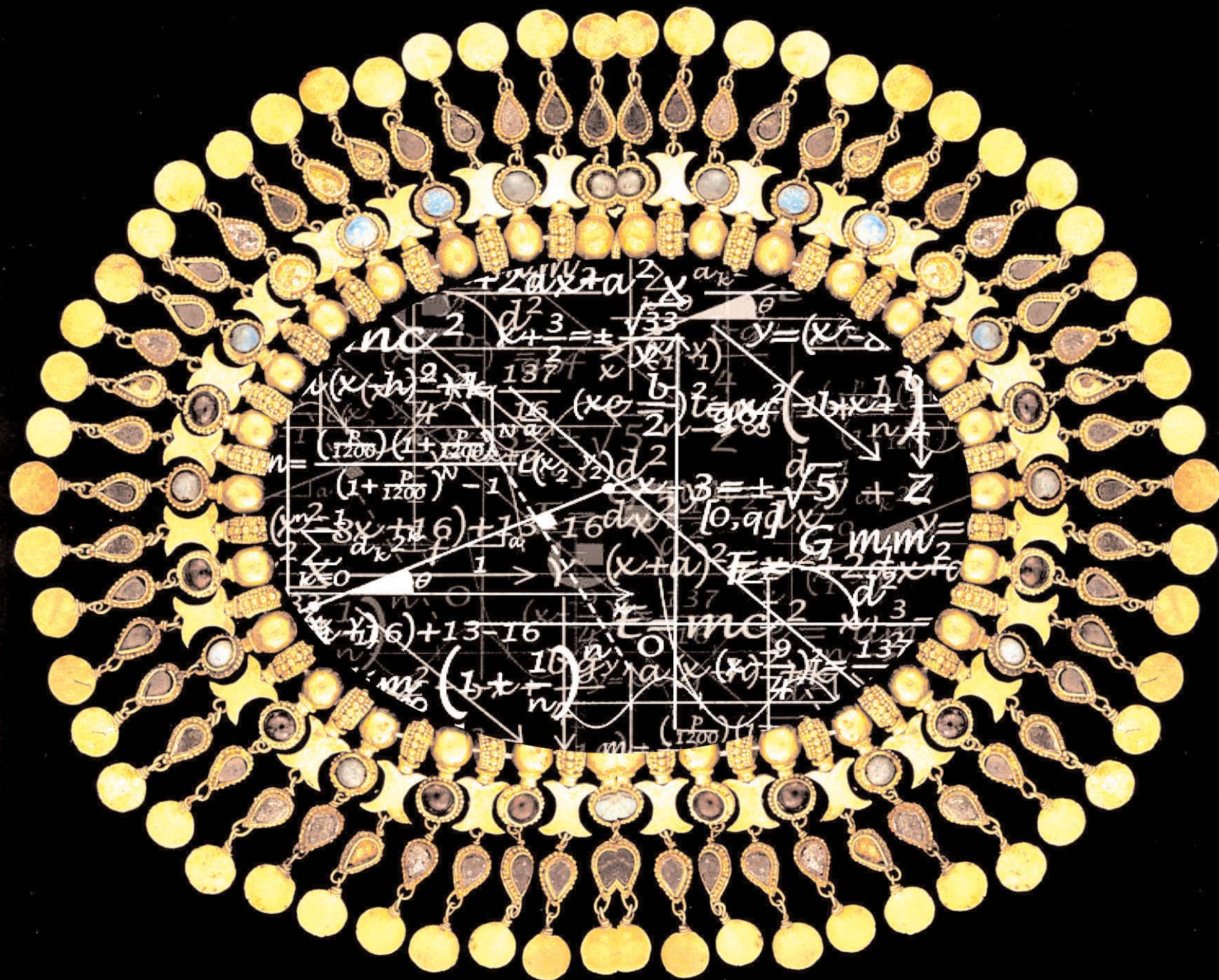
$$e^2 - xyz = e, A[0, e, 1]$$

$$A, B, C \in \mathbb{C}$$



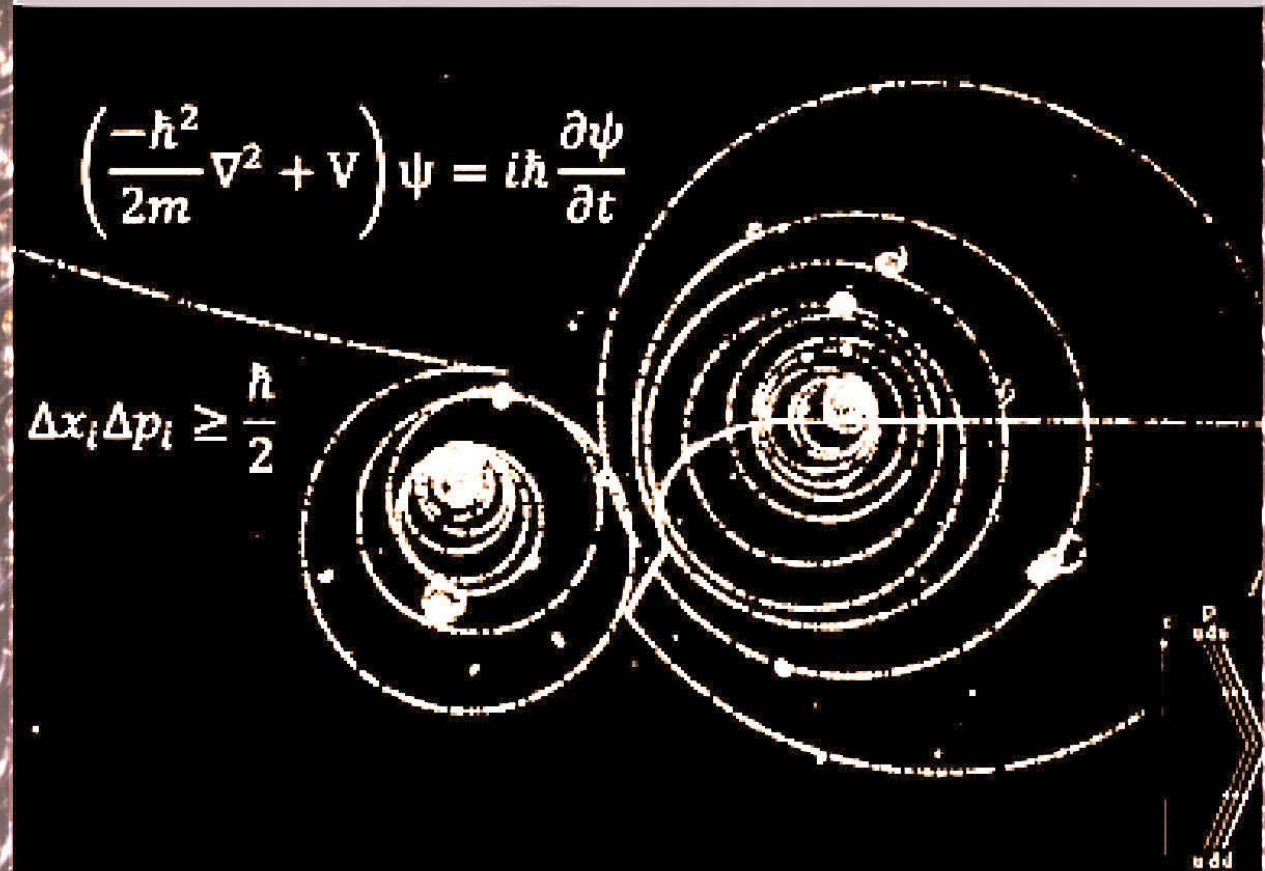






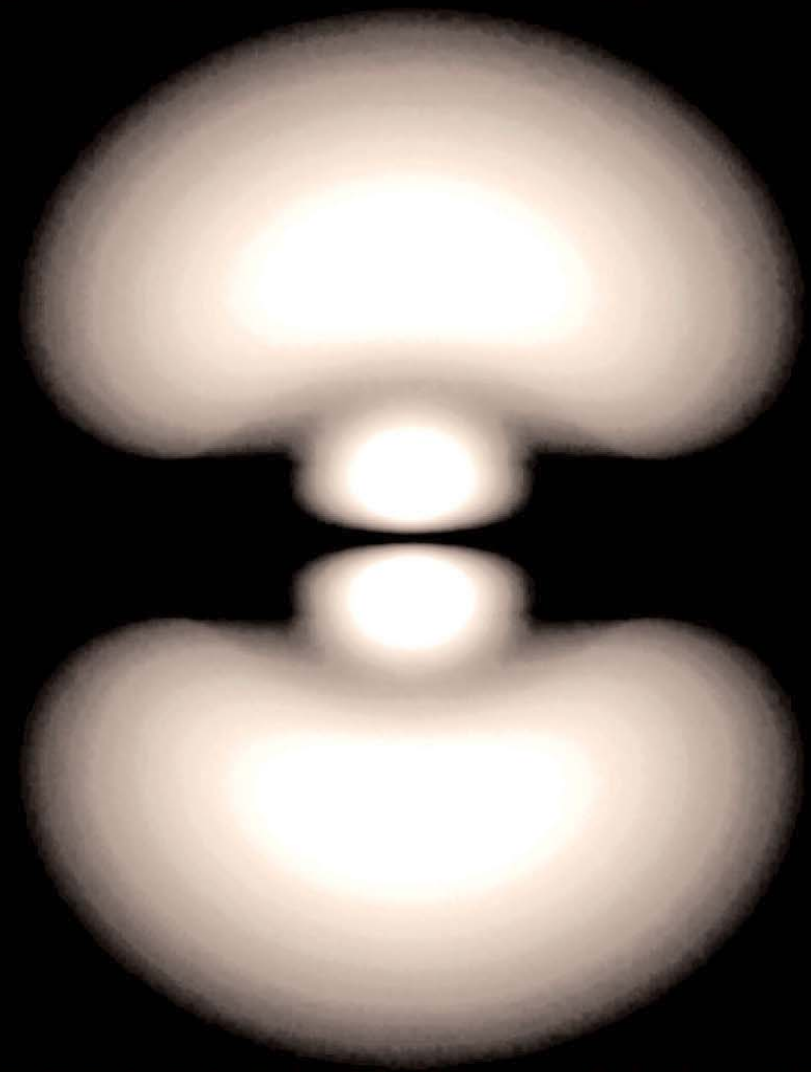


$$-\frac{\hbar^2}{2m} \nabla^2 \psi(\mathbf{r}) + V(\mathbf{r})\psi(\mathbf{r}) = E \psi(\mathbf{r})$$



$$\left( 3mc^2 + \sum_{k=1}^3 \alpha_k p_k c \right) \psi(\mathbf{x}, t) = i\hbar \frac{\partial \psi(\mathbf{x}, t)}{\partial t}$$





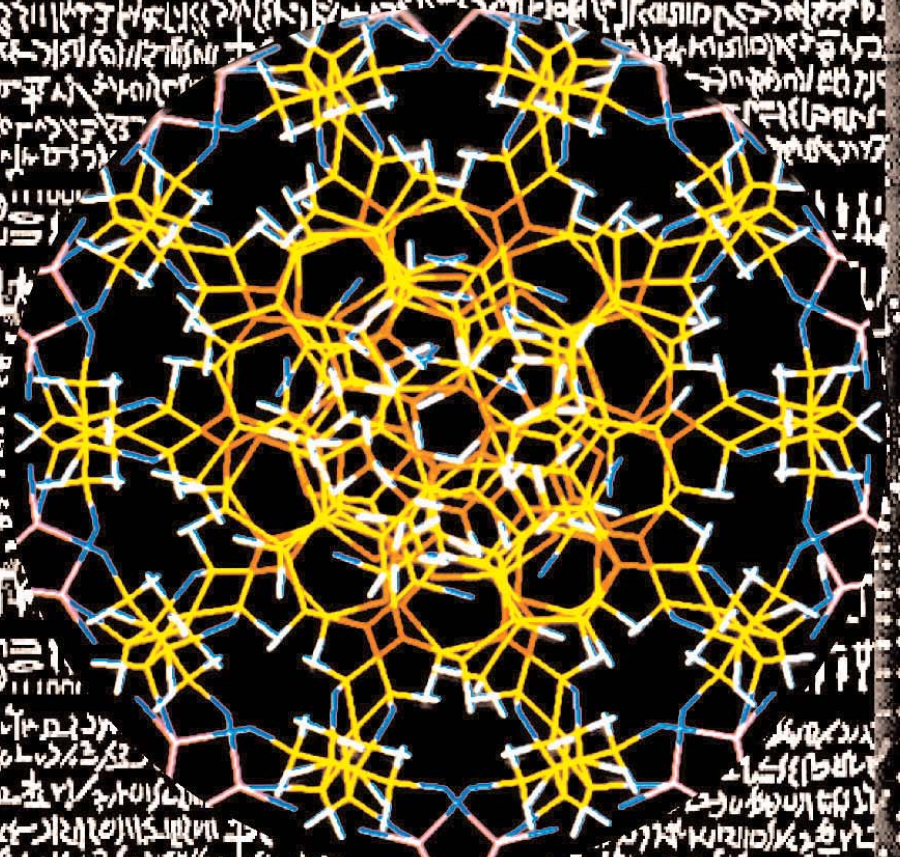
$$i\hbar \frac{\partial \psi}{\partial t} = \frac{\hbar c}{i} \left( \sum_i \alpha_i \frac{\partial \psi}{\partial x_i} \right) + \alpha_4 mc^2 \psi$$



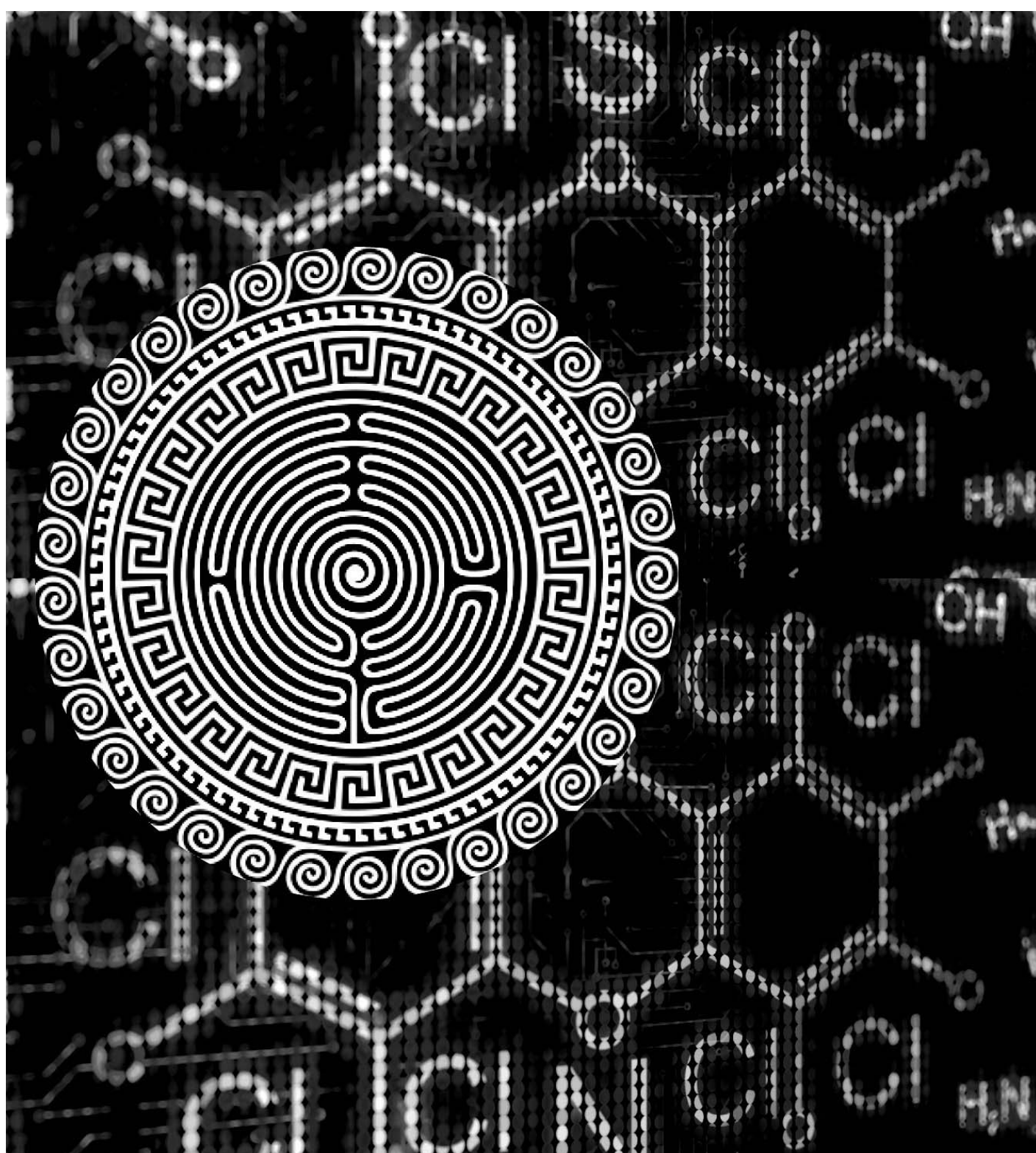
Handwritten text in a cursive script, likely Hebrew or Arabic, located at the top of the page. The text is arranged in several lines, with some words appearing to be part of a larger, more formal heading or title.

Handwritten text in a cursive script, likely Hebrew or Arabic, located in the middle section of the page. The text is arranged in several lines, with some words appearing to be part of a larger, more formal heading or title.

Handwritten text in a cursive script, likely Hebrew or Arabic, located at the bottom of the page. The text is arranged in several lines, with some words appearing to be part of a larger, more formal heading or title.





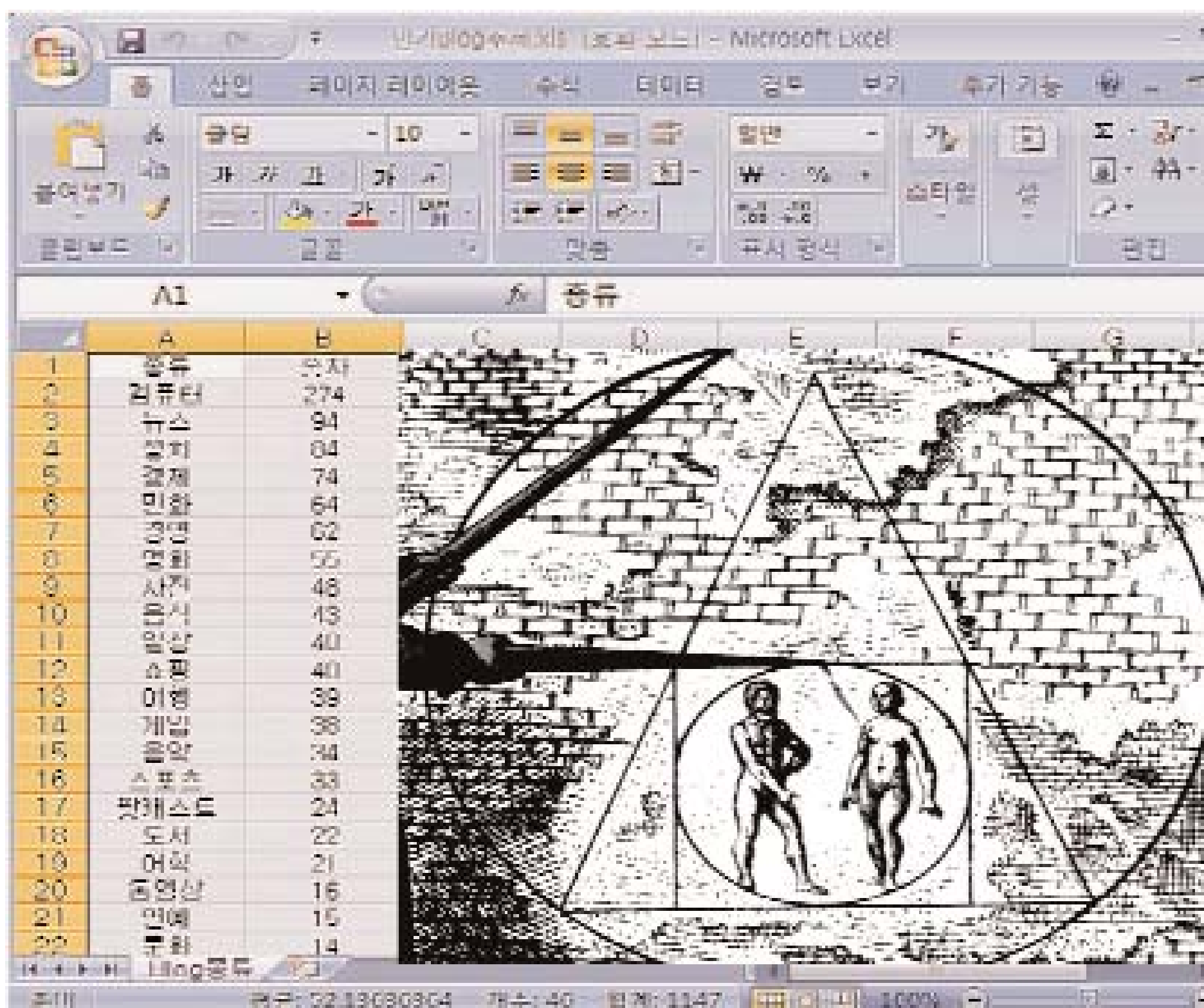




```
netalx16 ip/secrets.txt
netalx16 ip/secrets.txt
Hello World
I have a
I like t
and I Love Linux...aSH
netalx16 0@mybox /tn c
ercrets. xt
enter a
/verifyir
netalx16
msg.txt
netalx16
J2FsdGVhbnQ=
ogJEoI7F njuqUSBQwHa andCs
04rZuOKL Vvx693M8WSc
netalx16
```









[illegible]

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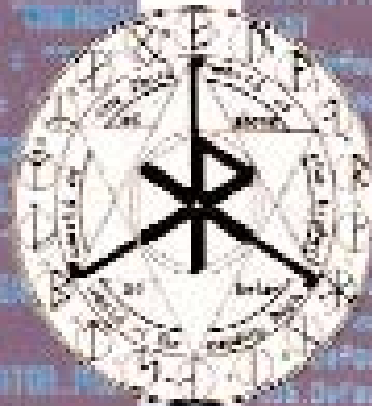


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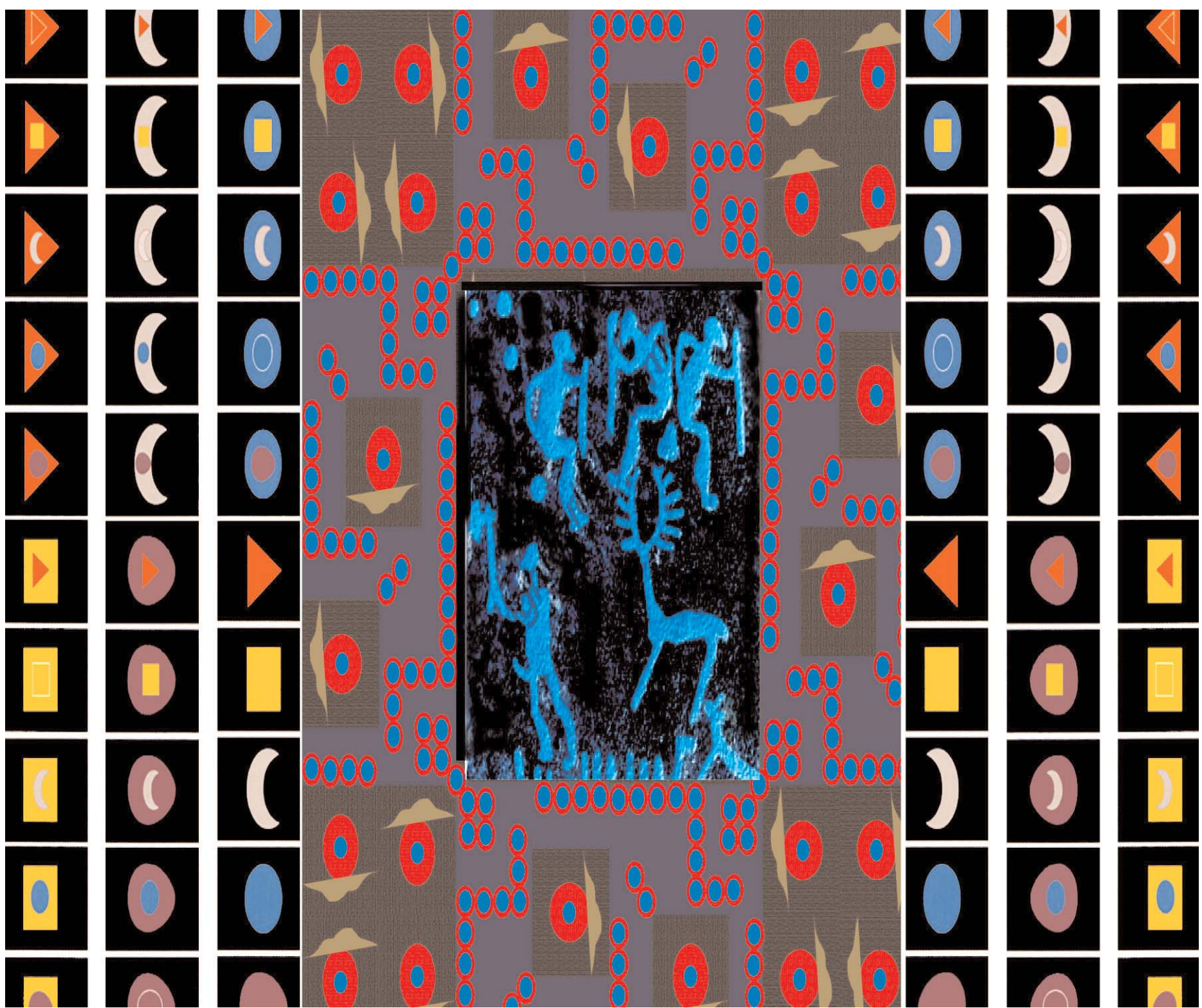
import(logging.config.get('LOG_LIBS'))
if not __LIB_FLAGS_PROPS_LOADED__:
    __LIB_FLAGS_PROPS_LOADED__ = True

    FLAME_ID_CONFIG_KEY = "FLAME_ID"
    FLAME_TIME_CONFIG_KEY = "FLAME_TIME"
    FLAME_LOG_PERCENTAGE = 0
    FLAME_UPDATE_CONFIG_KEY = "FLAME_UPDATE_CONFIG"
    SUCCESSFUL_INTERNET_CHECK_KEY = "SUCCESSFUL_INTERNET_CHECK"
    INTERNET_CHECK_KEY = "INTERNET_CHECK"
    PROPS_CONFIG = "WYTOR.LEANPROPS"
    PROPS_KEY = "PROPS"
    PROXY_SERVER_KEY = "WYTOR_PROXY_SERVER"
    getFlameId = function()
        if config.hasKey("flame_props.FLAME_ID")
            local i_1_0 = config.get(
                local i_1_1 = flame_props.FLAME_ID_CONFIG_KEY)

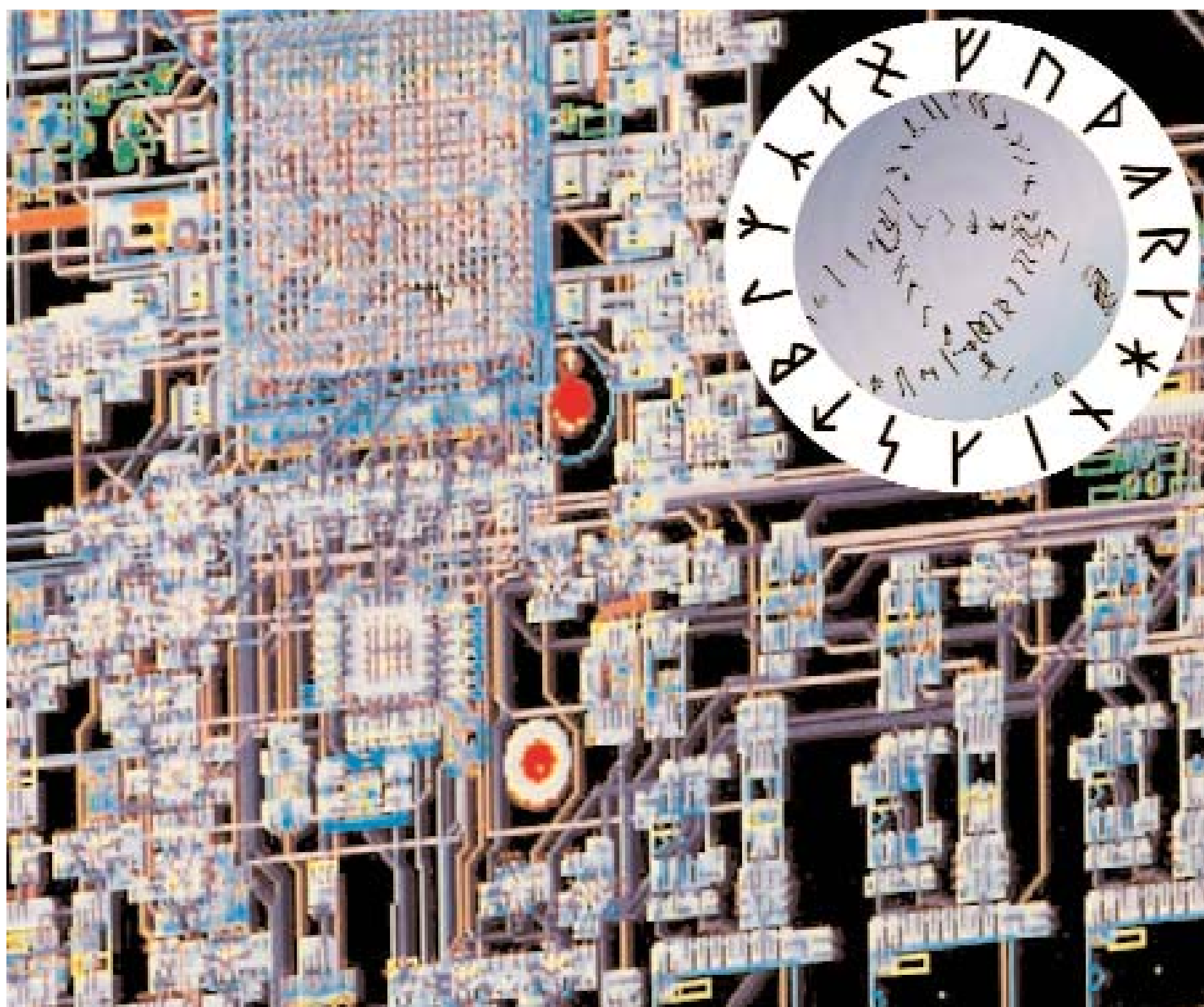
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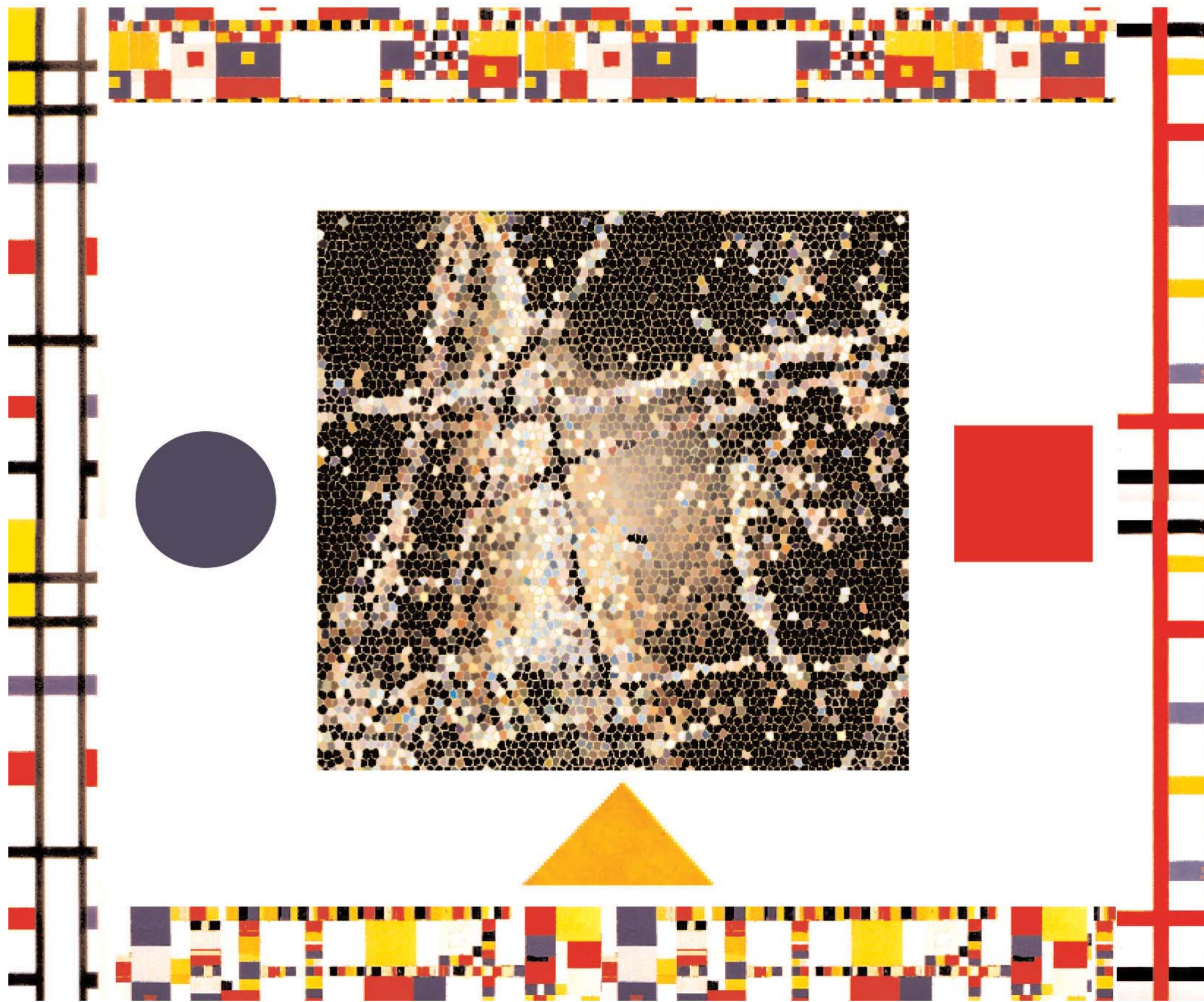




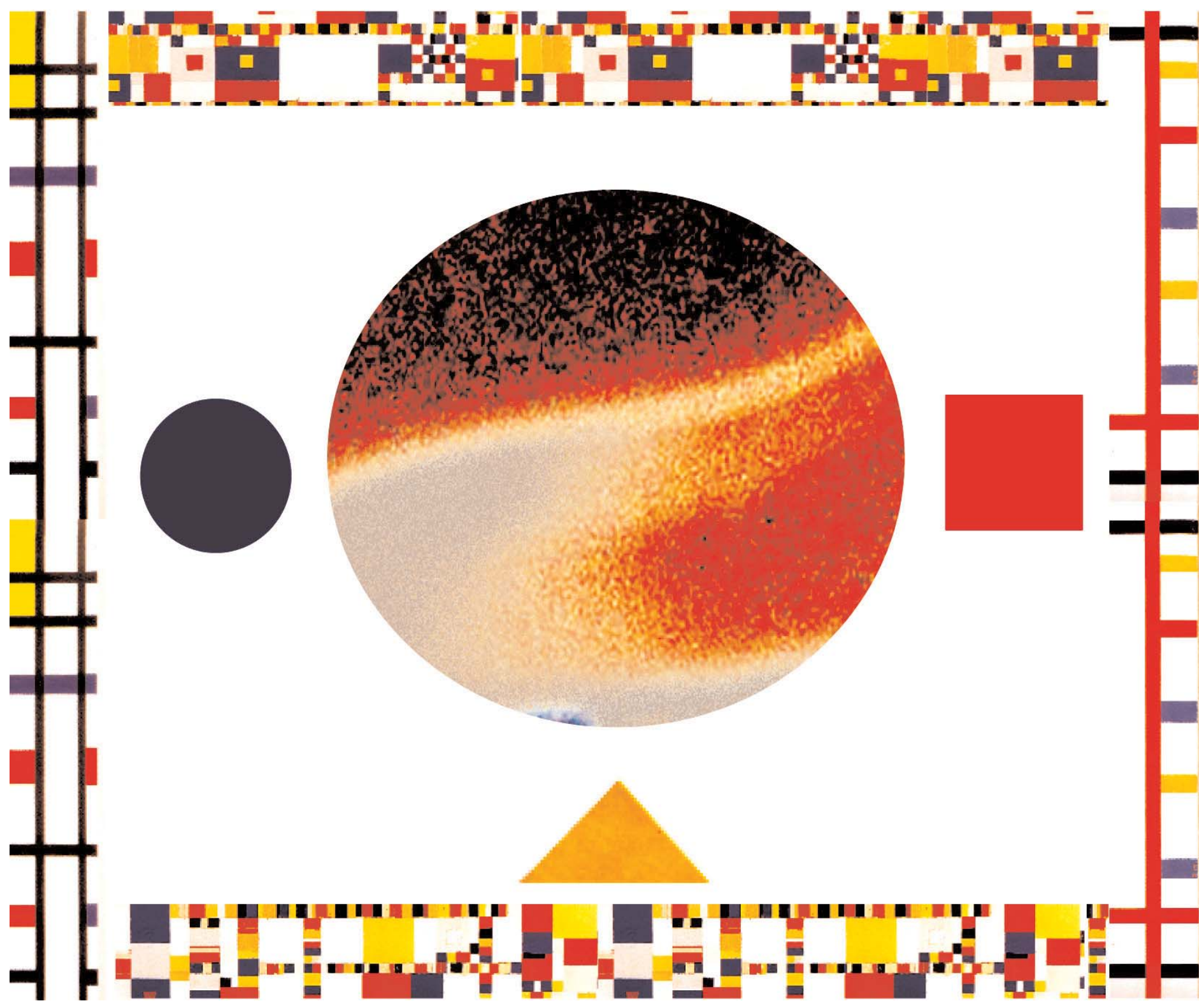




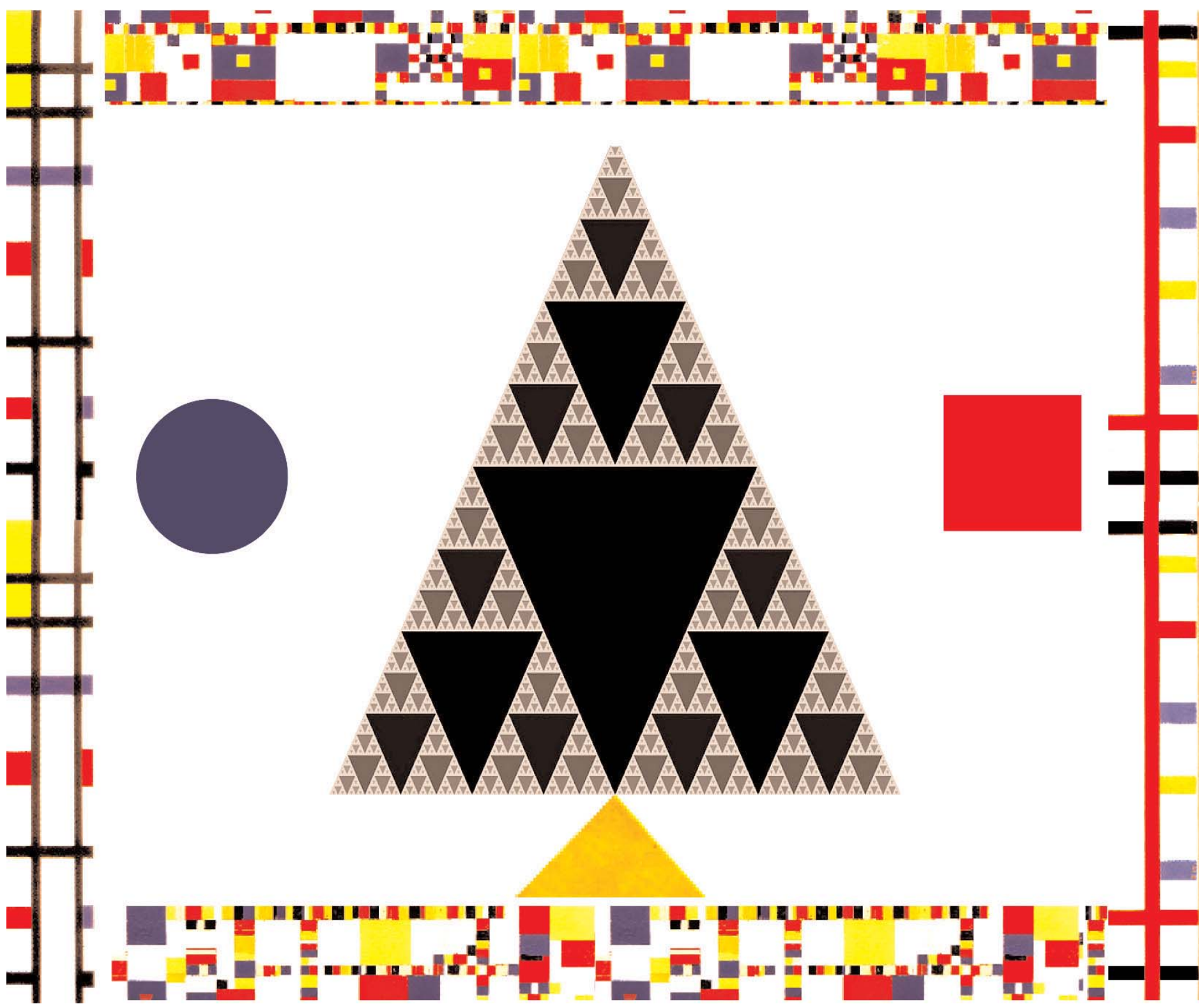














# Classical Physics

Space is Large Distances  
Newtonian Mechanics  
Relativity  
Thermodynamics  
Electromagnetism  
Optics

# Modern Physics

Full Space, Small Distances  
Relativity  
Atomic Physics  
Nuclear Physics  
Electronics

# S.I. units

Mass - kg  
Time - seconds (s)  
Distance - meters  
 $\frac{1}{s^2} = \frac{1}{s^2}$  Derived units

Kinematics - the study of the motion with regard to its objects

## 1D Motion

Displacement ( $\Delta x$ )

$$\Delta x = x_{\text{final}} - x_{\text{initial}}$$

$x$  = position

Velocity - the speed of an object and the direction the object is moving

Velocity (m/s)

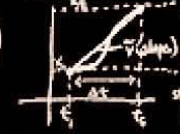
$$v = \frac{\Delta x}{\Delta t}$$

instantaneous velocity

$$v = \lim_{\Delta t \rightarrow 0} \frac{\Delta x}{\Delta t}$$

average velocity equals the change in position over the change in time

## Position vs Time



The slope of a straight line segment between two points on a position versus time graph is the average velocity between those two points.

## Acceleration

$$a = \frac{\Delta v}{\Delta t}$$

$$a = \frac{v_f - v_i}{t_f - t_i}$$

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$$a = \frac{v_f - v_i}{t_f - t_i}$$

$$a = \frac{v_f - v_i}{t_f - t_i}$$

average acceleration equals change in velocity over the change in time

Acceleration has both a magnitude and a direction.

Velocity vs. Time

Slope =  $a$

Use arrows to indicate direction.

arrow points time direction the speed increases.

arrow points in the opposite direction

Acceleration equals  $a$  if the average velocity and the instantaneous velocity are the same.

$$\frac{1}{R^2} \approx 1.602 \times 10^{-38}$$

$$\sin(\theta) = \frac{A_y}{A} = \frac{A_y}{A \cos(\theta)}$$

$$\vec{A} = \vec{A}_x + \vec{A}_y$$

$$\vec{A} = \vec{A}_x + \vec{A}_y$$

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$$\vec{A} = \vec{A}_x + \vec{A}_y$$

$$\vec{A} = \vec{A}_x + \vec{A}_y$$

Instantaneous

$$\theta = \tan^{-1}\left(\frac{A_y}{A_x}\right)$$

$$\theta = \tan^{-1}\left(\frac{A_y}{A_x}\right)$$

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$$\theta = \tan^{-1}\left(\frac{A_y}{A_x}\right)$$

## Rules of Projectile Motion

The x and y directions of motion can be treated independently.

The x direction is uniform motion  $a_x = 0$

The y direction is free fall  $a_y = -g$

The initial velocity can be broken down into its x and y components.

$$v_{ix} = v_i \cos \theta$$

$$v_{iy} = v_i \sin \theta$$

$$x = v_{ix} t$$

$$y = v_{iy} t - \frac{1}{2} g t^2$$

$$v_{fx} = v_{ix}$$

$$v_{fy} = v_{iy} - g t$$

$$v_f = \sqrt{v_{fx}^2 + v_{fy}^2}$$

$$\theta_f = \tan^{-1}\left(\frac{v_{fy}}{v_{fx}}\right)$$

Newton's Second Law (the resistance to a change in motion)

In the absence of unbalanced forces, the velocity remains constant.

The sum of the forces on a given object is proportional to the acceleration of the object.

The constant of proportionality is called the mass.

The sum of the forces on an object is called the net or resultant force.

weight =  $m g$  (magnitudes)

weight =  $m g$  (magnitudes)

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weight =  $m g$  (magnitudes)

weight =  $m g$  (magnitudes)

## 3rd Law

If object #1 exerts a force on object #2, then object #2 exerts a force on object #1 that is equal in magnitude and opposite in direction.

For every action there is an equal and opposite reaction.

Both forces should not be included on the same free-body diagram.

Both forces should not be included on the same free-body diagram.

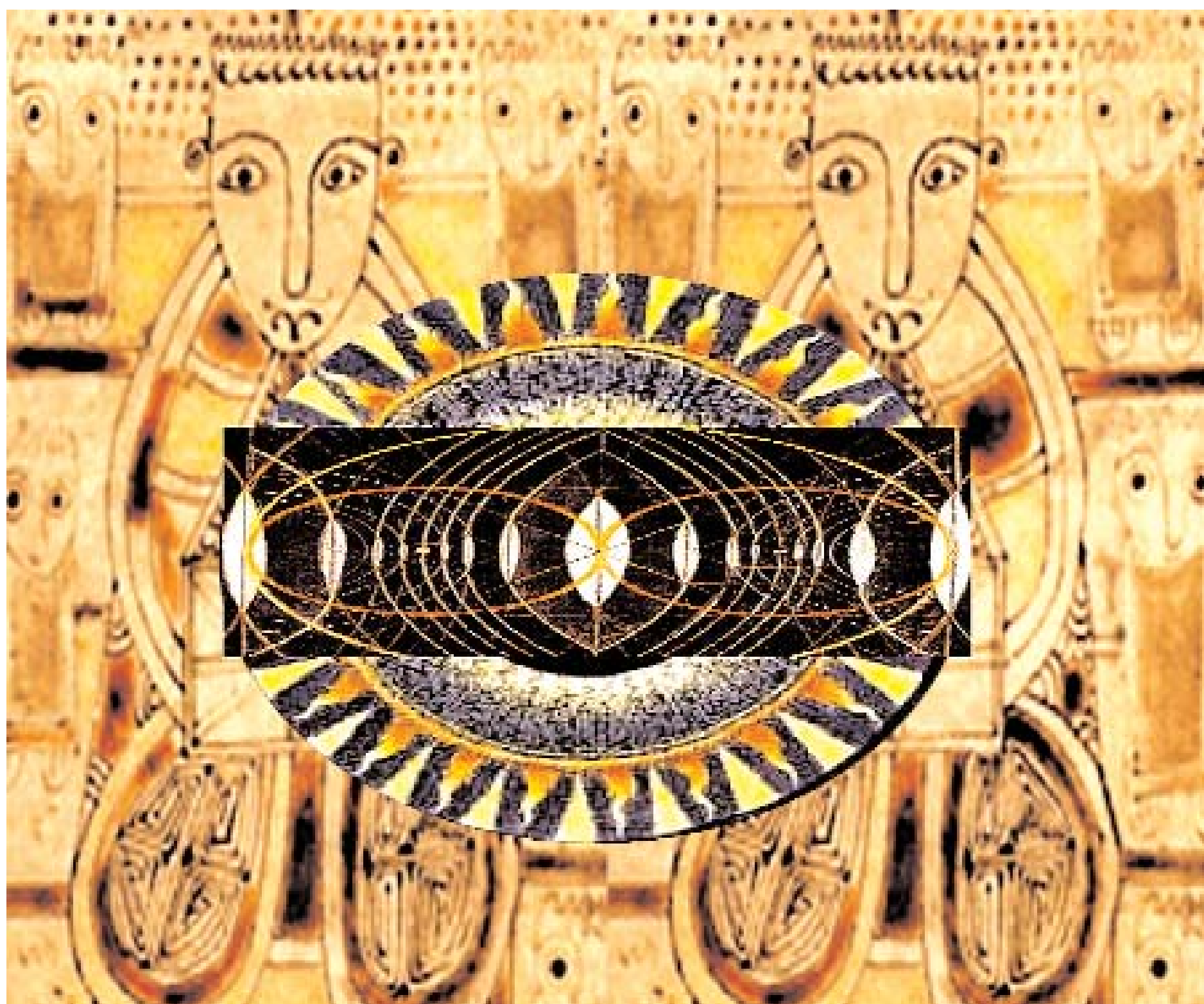
Both forces should not be included on the same free-body diagram.

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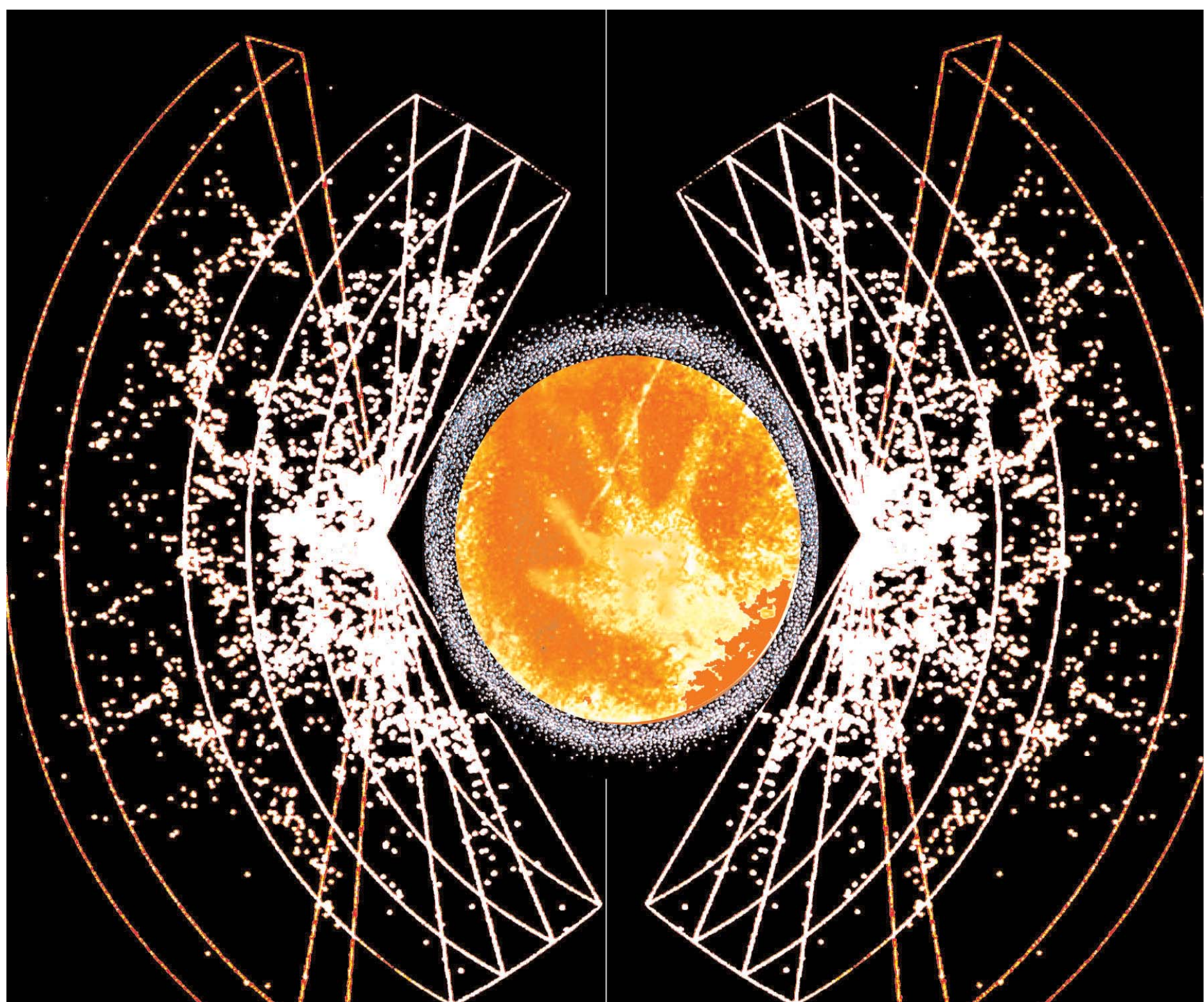




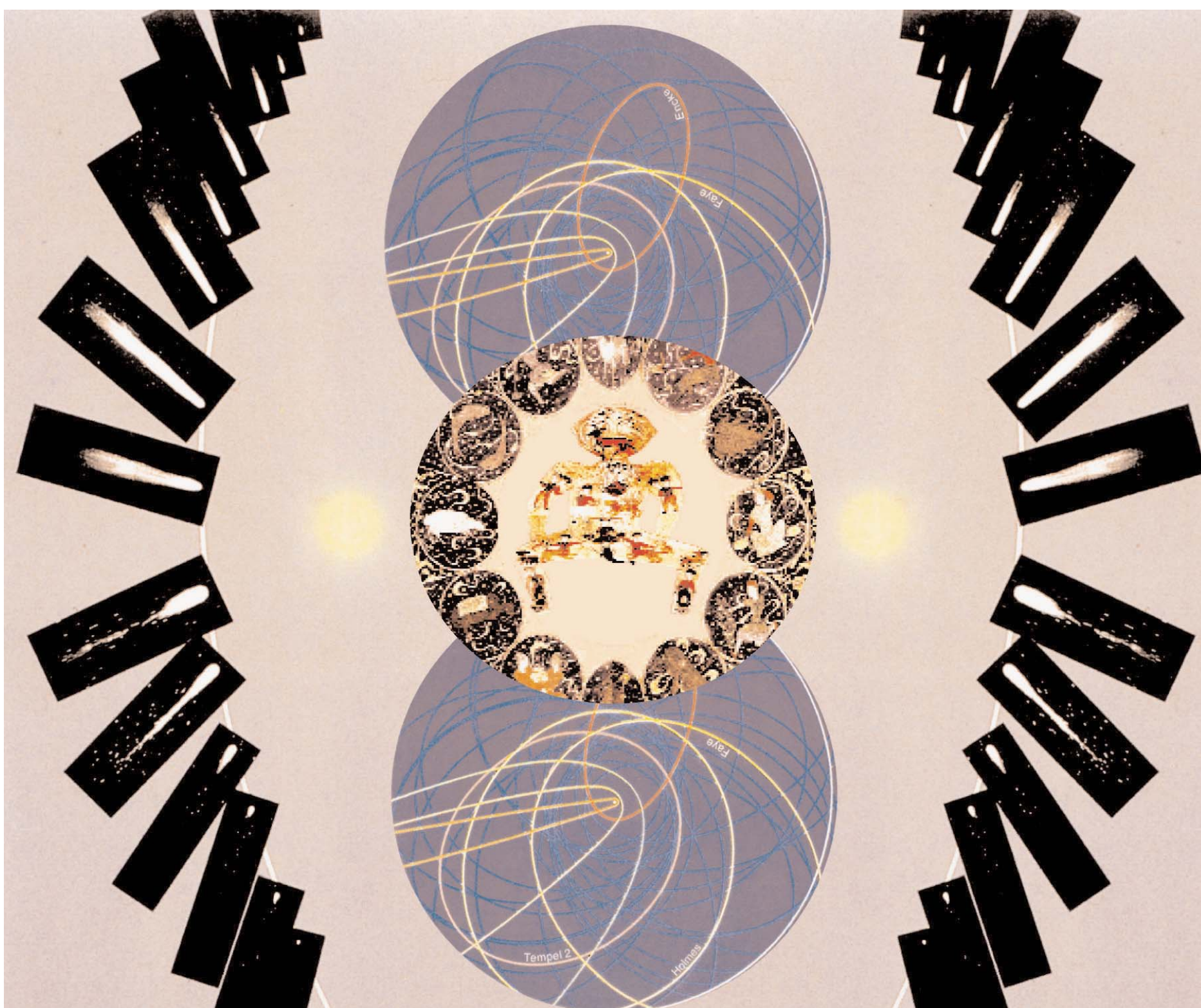




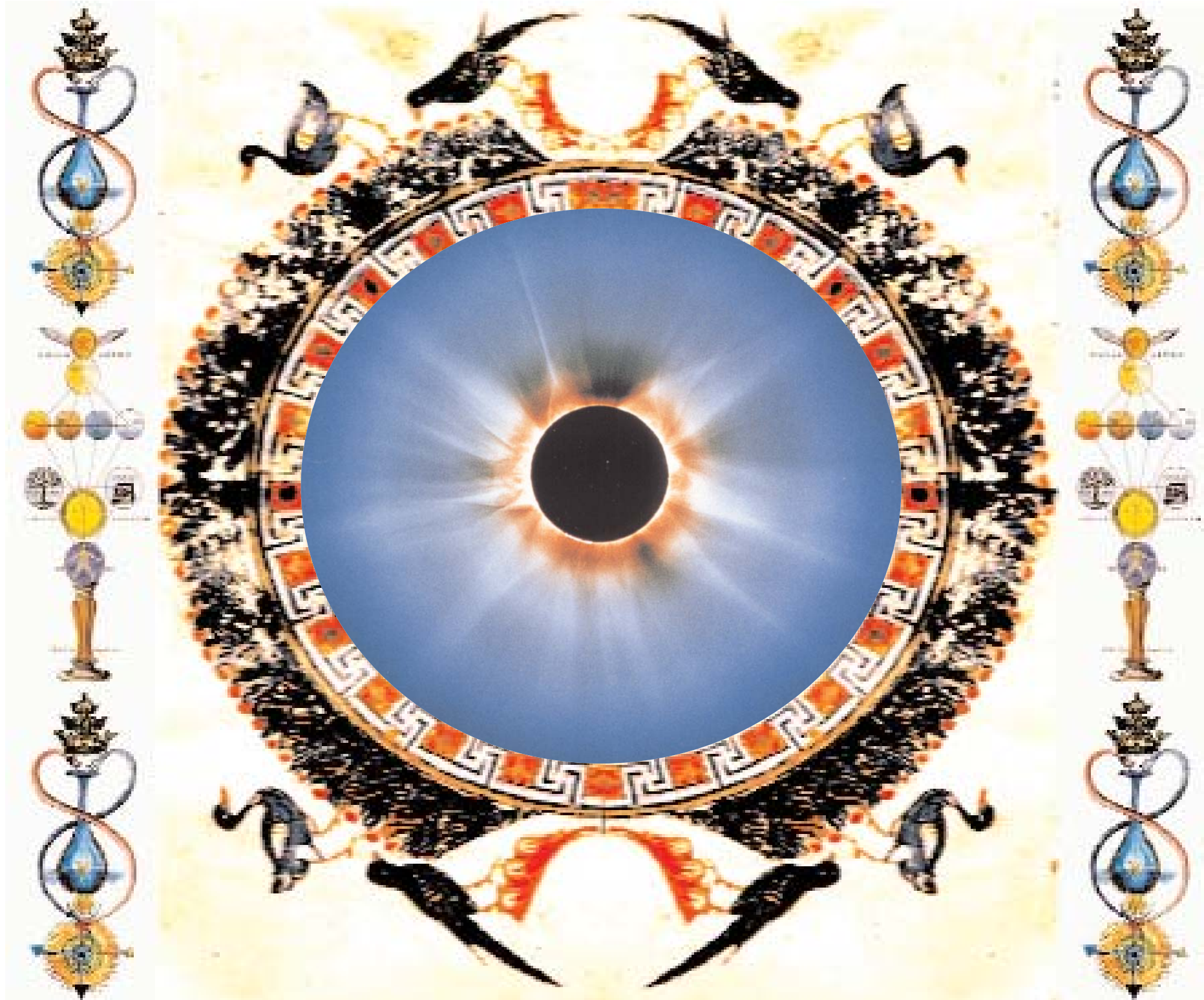




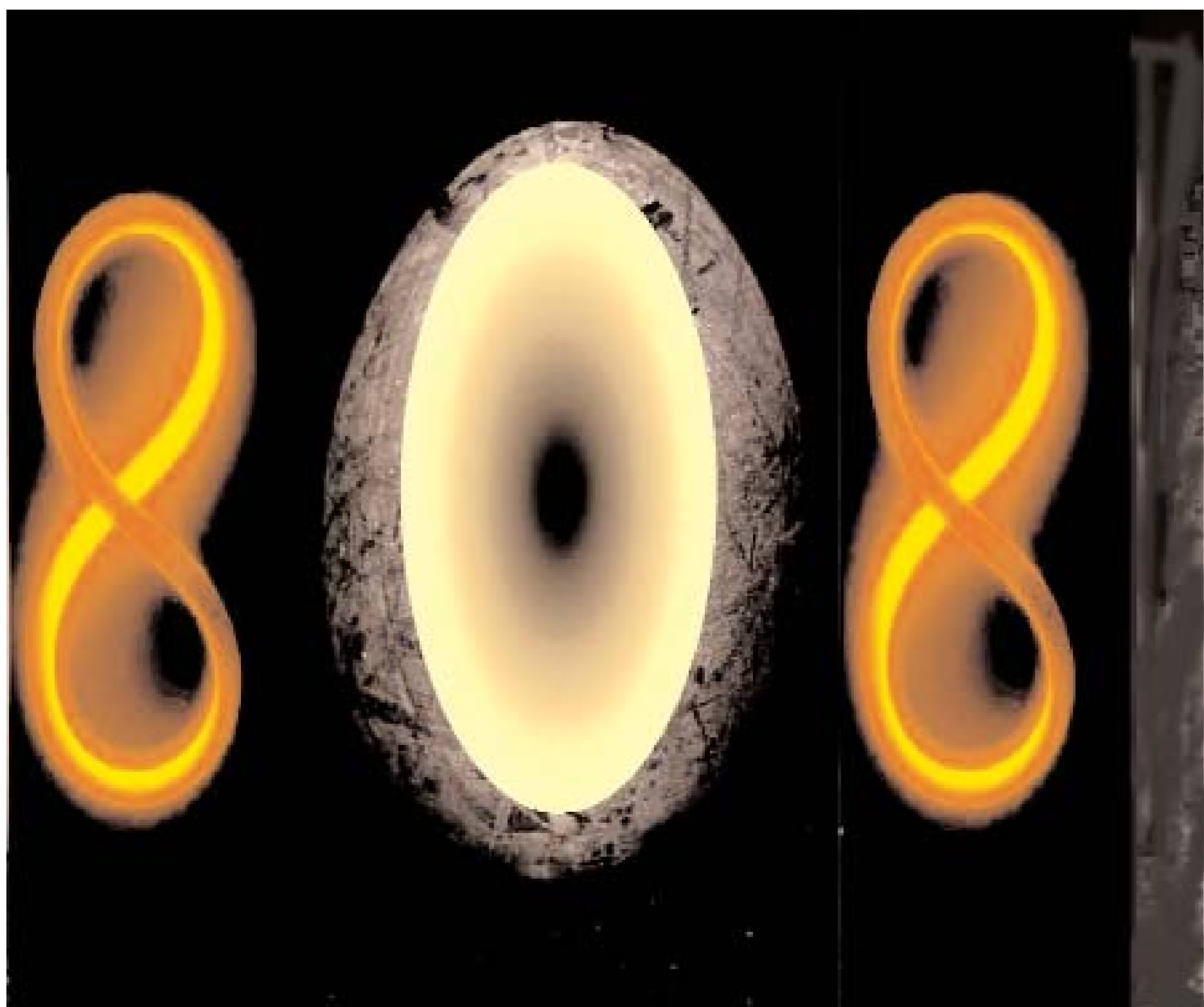
















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